

# **ETERNUS** **DX400/DX8000** **series** ETERNUSmgr

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## User Guide

-Settings/Maintenance-

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## Preface

This guide provides a variety of basic information about ETERNUSmgr for the ETERNUS DX410/DX440 and ETERNUS DX8100/DX8400/DX8700.

It should be referred to when ETERNUSmgr is used to monitor, set up and maintain ETERNUS DX410/DX440 and ETERNUS DX8100/DX8400/DX8700 (hereafter also referred to as "ETERNUS DX400/DX8000 series" or "device").

Operation management software other than ETERNUSmgr can be also used to monitor the ETERNUS DX400/DX8000 series. The ETERNUSmgr backend program, which is embedded in the ETERNUS DX400/DX8000 series, is used to display the status of, setup and maintain the ETERNUS DX400/DX8000 series. In this guide, function of the ETERNUSmgr backend program is also referred to as "ETERNUSmgr".

This guide is specially written for ETERNUSmgr administrators and operators. Knowledge of UNIX or Windows® system administration and Web server administration are required to understand this guide.

This guide is written for controller firmware version V20L5x. Some of the functions herein may not be supported for firmware version V20L4x.

Second Edition  
August 2010

## Structure of This Manual

This manual consists of the following nine chapters and three appendixes.

- Chapter 1 Operation Screens

This chapter explains the operation windows of ETERNUSmgr.

- Chapter 2 Logon/Logoff

This chapter describes the logon and logoff procedures for the ETERNUSmgr.

- Chapter 3 Status Menu

This chapter describes the various physical and logical status screens.

- Chapter 4 Getting Started Menu

This chapter describes the Getting Started menu's various submenus and their functions.

- Chapter 5 Configuration Menu

This chapter describes the various RAID group and host connection settings.

- Chapter 6 Settings Menu

This chapter describes the Setting menu's various submenu settings.

- Chapter 7 Download Menu

This chapter describes the Download menu's various submenu settings.

- Chapter 8 Remote Support Menu

This chapter describes the Remote Support menu's various submenus and their functions.

- Chapter 9 User Accounts Menu

This chapter describes the User Account menu's submenu and their functions.

Screen details for ETERNUSmgr, notes on access via https, and Syslog message list are provided in the Appendixes.

## Related Materials

The following are related materials:

- ETERNUS Disk storage systems ETERNUSmgr User Guide -Introduction-
- ETERNUS Disk storage systems ETERNUSmgr Install Guide for Solaris™ Operating System
- ETERNUS Disk storage systems ETERNUSmgr Install Guide for Windows®
- ETERNUS Disk storage systems ETERNUSmgr Install Guide for Linux
- ETERNUS Disk storage systems ETERNUSmgr Install Guide for HP-UX
- ETERNUS Disk storage systems ETERNUSmgr Install Guide for AIX
- ETERNUS DX410/DX440 Disk storage system User Guide
- ETERNUS DX8100/DX8400/DX8700 Disk storage system User Guide
- ETERNUS DX Disk storage systems Server Connection Guide (Fibre Channel) for Solaris™ Operating System
- ETERNUS DX Disk storage systems Server Connection Guide (Fibre Channel) for HP-UX
- ETERNUS DX Disk storage systems Server Connection Guide (Fibre Channel) for AIX
- ETERNUS DX Disk storage systems Server Connection Guide (Fibre Channel) for Windows®
- ETERNUS DX Disk storage systems Server Connection Guide (Fibre Channel) for Linux
- ETERNUS DX Disk storage systems Server Connection Guide (Fibre Channel) Fibre Channel Switch Settings
- ETERNUS DX Disk storage systems Server Connection Guide (Fibre Channel) ETERNUS DX Disk Storage System Settings for ETERNUS DX400/DX8000 series
- ETERNUS DX Disk storage systems Server Connection Guide (Fibre Channel) for VMware® ESX
- ETERNUS DX Disk storage systems Server Connection Guide (iSCSI) for Solaris™ Operating System
- ETERNUS Disk storage systems Server Connection Guide (iSCSI) for HP-UX
- ETERNUS Disk storage systems Server Connection Guide (iSCSI) for Windows®
- ETERNUS Disk storage systems Server Connection Guide (iSCSI) for Linux
- ETERNUS DX Disk storage systems Server Connection Guide (iSCSI) for VMware® ESX
- ETERNUS DX Disk storage systems Server Connection Guide (iSCSI) ETERNUS DX Disk Storage System Settings for ETERNUS DX400/DX8000 series

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## Abbreviations

The following products will be represented throughout this manual by the following abbreviations.

- Microsoft® Windows® 2000 Server operating system and Microsoft® Windows® 2000 Advanced Server operating system are abbreviated as Windows® 2000.
- Microsoft® Windows Server® 2003, Standard Edition, and Microsoft® Windows Server® 2003, Enterprise Edition are abbreviated as Windows Server® 2003.
- Microsoft® Windows Server® 2008 Standard Edition, Microsoft® Windows Server® 2008 Enterprise Edition, Windows Server® 2008 Datacenter Edition, and Windows Server® 2008 for Itanium-based Systems Edition are abbreviated as Windows Server® 2008.
- Windows® refers to all the Windows products listed here: Windows® 2000, Windows Server® 2003, and Windows Server® 2008.
- "Solaris OS" represents a Solaris™ Operating System.

## Units in this Manual

Except as otherwise noted, the following units are used in this manual:

- Physical disk capacity and disk drive types assume that 1KB = 1,000B, 1MB = 1,000KB, 1GB = 1,000MB, and 1TB = 1,000GB (example: "300GB disk drive").
- Other capacities (for RAID groups and volumes) assume that 1KB = 1,024B, 1MB = 1,024KB, 1GB = 1,024MB, and 1TB = 1,024GB.

## Administrator Privileges for Resource Domains

There are two privileges for the ETERNUS DX400/DX8000 series in which Resource Domains are registered: "Total Administrator" and "Resource Domain Administrator". In this manual, these privileges are defined as follows.

- A "Total Administrator" account is a user account with the default role specified using the [Set User Account] function, or a user account with the role in which "All Resources" is specified as the Resource Domain using the [Set Role] function.  
In this manual, a "system administrator" is equivalent to a "Total Administrator". A Total Administrator can create, change, and delete all the resources that are assigned to Resource Domains.
- A "Resource Domain Administrator" account is a user account with the role in which a specific Resource Domain is specified using the [Set Role] function. A Resource Domain Administrator can create resources in a Resource Domain that is specified to the user account. In addition, a Resource Domain Administrator can change and delete resources in the relevant Resource Domain and Shared Resource.

Note that the screens in this manual are displayed when logged on the ETERNUS DX400/DX8000 series in which Resource Domains are not registered using a Total Administrator account, except as otherwise noted.

Also, note that the screen shots in this manual were captured during development of the software and the actual screens may be different.

Screen shot(s) reprinted with permission from Microsoft Corporation.

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# Chapter 1 Operation Screens

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The ETERNUSmgr backend program, which is embedded in the ETERNUS DX400/DX8000 series, is used to display the status of, setup and maintain the ETERNUS DX400/DX8000 series. This chapter describes how this may be done.

## 1.1 Initial Screen

---

When using an ETERNUS DX400/DX8000 series, you must always keep a careful watch on its status to monitor the device. Use either the ETERNUSmgr frontend or other operation management software. To start the initial screen, you should take different procedure, depending on the monitoring method.

---

**Caution**

Two methods to manage ETERNUS DX400/DX8000 series are explained in this guide. One is via the ETERNUSmgr frontend, and the other is to use a Web browser to access the ETERNUSmgr backend program embedded in the device.

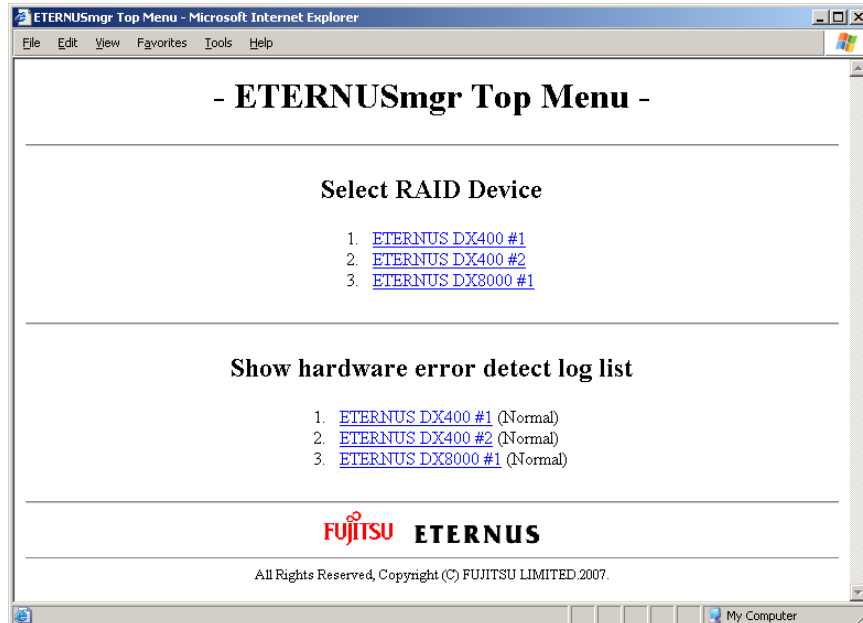
Hereafter, "ETERNUSmgr" is generally used for all device management, even those that use an ordinary Web browser.

---

### 1.1.1 Use the ETERNUSmgr Frontend

When using the ETERNUSmgr client, the initial screen is the ETERNUSmgr top menu. Enter the URL of the top menu file ("menu.htm"), and the top menu will appear. For details of the top menu file, please refer to the "ETERNUS Disk storage systems ETERNUSmgr User Guide - Introduction-".

The following shows a typical ETERNUSmgr Top Menu screen.



● Select RAID Device menu

Click the name of a target device listed in the [Select RAID Device] menu to access the device's logon screen. See ["2.1 Logon" \(page 37\)](#) for details on how to logon.

● Show hardware error detect log list menu

Click the name of a target device listed in the [Show hardware error detect log list] menu to get a listing of the target device's error logs (alarm history files). This will require use of the Web server's list display function. Refer to the User's Guide for the Web server being used for more details.

The status of the selected target device appears to the right of its alarm history file link. The various statuses are described below.

Normal	(Black) Indicates that device is operating without any error.
*Offline*	(Red) Indicates that monitoring of the target device is not possible for one of the following reasons: the ETERNUSmgr monitoring function is not active (e.g. immediately after ETERNUSmgr installation), a problem has occurred with the target device (e.g. power supply shutdown, no response), or a problem has occurred with the communication link between the ETERNUSmgr server and the target device (e.g. broken wiring, severe delays due to network overload). The target device status will also be set to "Offline" if the Target Address (TARGET_ADDR/TARGET_PORT) specified in the setup file is incorrect. Check that the target device is operating normally, there is no problem with the network connection, and the setup file details are correct. This status will only be detected if a DETECT_OFFLINE=TRUE line is present in the setup file. If this setting is not present, the machine will not change from "Normal" or "ATTENTION" to "Offline".
*ATTENTION*	(Bold Red) Indicates that one or more errors have been detected in the machine. Log in to the machine and check the location of the fault.
*BUSY*	(Red) Indicates that the device cannot respond due to device suspension, or because a boot operation is currently in progress. Make sure that the device is operating normally.

**Caution** 

The statuses displayed on the top menu reflect the information current when the top menu was last reloaded by the Web browser. The actual current status of the target device may therefore not be displayed until the top menu is reloaded. Always reload the top menu to check the current target device status. Note that some Web browsers may display a previously cached page even after the top menu is reloaded. See the manual or online help for your Web browser for details.  
Note that, depending on the browser being used, "Reload" may be shown as "Refresh", etc.

## 1.1.2 Use direct browser access to ETERNUSmgr Backend Program

When using operation management software other than ETERNUSmgr frontend, initial screen is title screen of the ETERNUSmgr backend program embedded in the ETERNUS DX400/DX8000 series.

To check and maintain the ETERNUS DX400/DX8000 series, directly start the ETERNUSmgr backend program embedded in the device from a PC on which Web browser runs. The following are applicable Web browsers.

- Web browser
  - Microsoft® Internet Explorer 6.0 + Service Pack 2 (for Windows®)
  - Microsoft® Internet Explorer 7.0 (for Windows®)
  - Microsoft® Internet Explorer 8.0 (for Windows®)
  - Netscape 6.0 or later (for Windows®)

### Caution



- Note the following:
  - Set "Do not use proxy server" as the proxy setting.
  - Set page acquisition to not use the cache.
  - Enable the Java Script setting.
  - When Auto Reading of pages is available, enable the setting.
- Furthermore, when using ETERNUSmgr with Microsoft® Internet Explorer 7.0, note the following:
  - Enable [Automatic prompting for file downloads] and [Allow websites to open windows without address or status bars] under the Internet Options Security tab.
- Furthermore, when using ETERNUSmgr with Microsoft® Internet Explorer 8.0, note the following:
  - Enable [Automatic prompting for file downloads] and [Allow websites to open windows without address or status bars] under the Internet Options Security tab.
  - Disable the SmartScreen Filter in the [Tools] menu, or disable the SmartScreen Filter by clicking the [Safety] button, or delete the default gateway settings of the PC.

To access the ETERNUSmgr backend program, follow the procedures below.

### Procedure

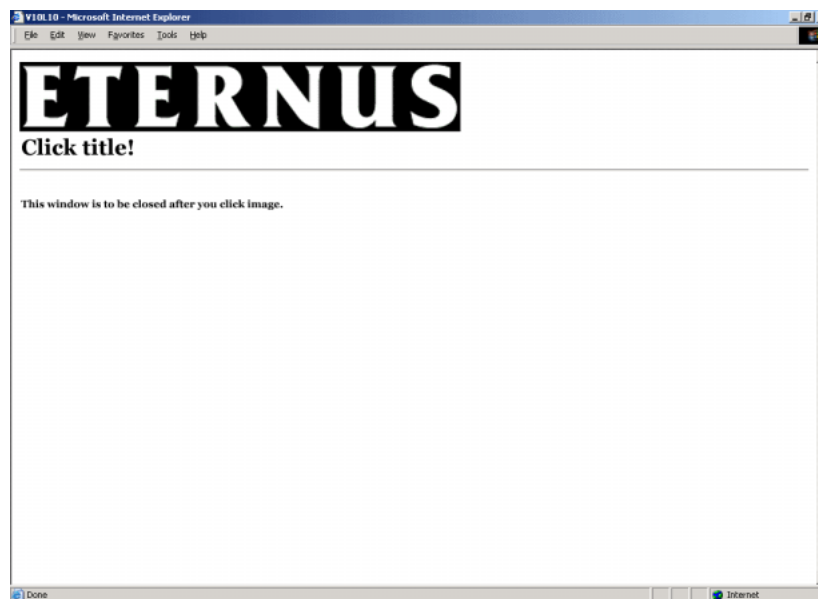
- 1** Establish a LAN connection between the PC and the ETERNUS DX400/DX8000 series USER port, then start the Web browser (To connect the PC directly to the device USER port, a LAN straight cable is required).
- 2** Input URL in the Web browser's address bar.  
Specify "http://device\_IP\_address/" or "https://device\_IP\_address/".  
→ The title screen of the ETERNUSmgr backend program appears.

## Caution

- There are two methods to specify the ETERNUS DX400/DX8000 series IP address: using "http" or "https". When placing emphasis on security, use "https".
- Security certificate errors can occur when using https to access an ETERNUS DX400/DX8000 series. Refer to ["Appendix B Notes on Access via https" \(page 816\)](#) for a procedure to solve this https access error.
- An IP address is not set for the ETERNUS DX400/DX8000 series USER port at the factory, and should be set using the following procedure:
  1. Have the customer assign an IP address for the USER port.
  2. When the ETERNUS DX400/DX8000 series is installed, use a LAN straight through cable to connect the FST(\*1) to the FST port whose master LED is on.
    - \*1: Maintenance engineer's Field Support Terminal.
  3. Set the USER port IP address from the FST using the "Set IP Address for USER Port" menu. This setting should be performed by the maintenance engineer.
  4. Use the USER port IP address (the ETERNUS DX400/DX8000 series's IP address) and start the PC.

### 3 Click the "ETERNUS" logo on the title screen.

The "ETERNUS" indicates "ETERNUS DX410/DX440" or "ETERNUS DX8100/DX8400/DX8700".

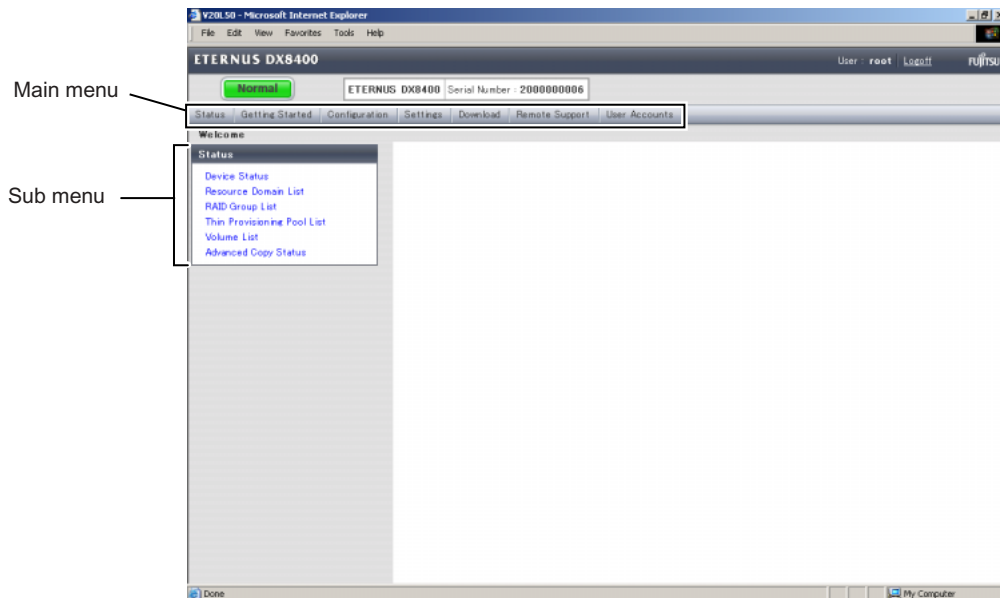


→ The ETERNUS DX400/DX8000 series logon screen appears. See ["2.1 Logon" \(page 37\)](#) for details on how to logon.

**End of procedure**

## 1.2 Operations Menu

The operation menu consists of a Main menu and various Submenus. Selecting an item from the Main menu will result in the relevant list of submenu items being displayed.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

Which menus are available will differ according to the account type. The system administrator (root) can access various maintenance/setting menus (including the Status), and a regular user can access the Status menus.

The system administrator is able to access the following menus:

- Status menu
- Getting Started menu
- Configuration menu
- Settings menu
- Download menu
- Remote Support menu
- User Accounts menu

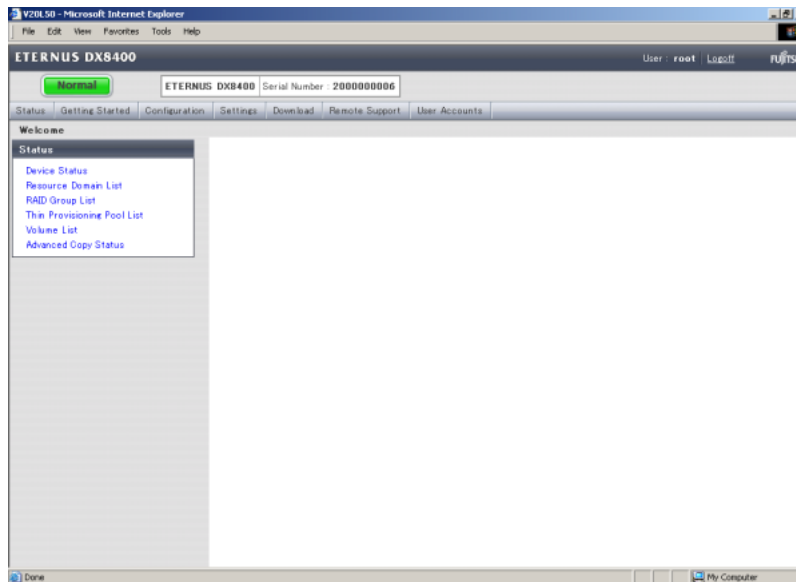
A regular user is only able to access the Status menu.

Operation menus may differ depending on the type of device. The different menus will be described in each section.

The following describes the ETERNUSmgr main menu screens.

## 1.2.1 Status Menu

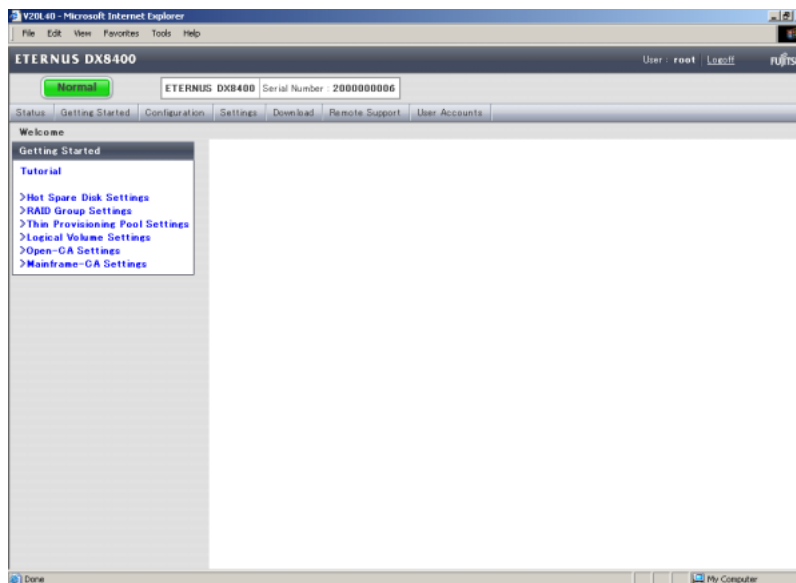
The Status menu is shown below. See ["Chapter 3 Status Menu" \(page 43\)](#) for an explanation of its submenus and functions.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

## 1.2.2 Getting Started Menu

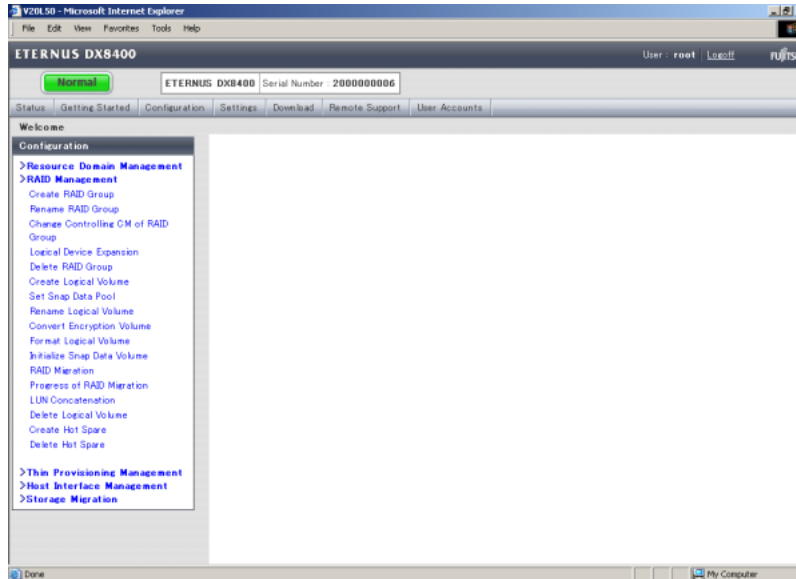
The Getting Started menu is shown below. See ["Chapter 4 Getting Started Menu" \(page 78\)](#) for an explanation of its submenus and functions.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

## 1.2.3 Configuration Menu

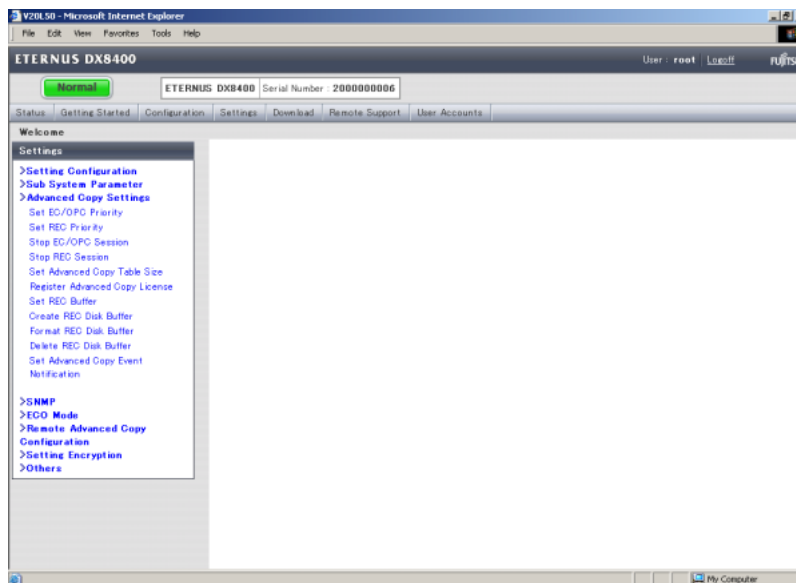
The Configuration menu is shown below. See ["Chapter 5 Configuration Menu" \(page 97\)](#) for an explanation of its submenus and functions.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

## 1.2.4 Settings Menu

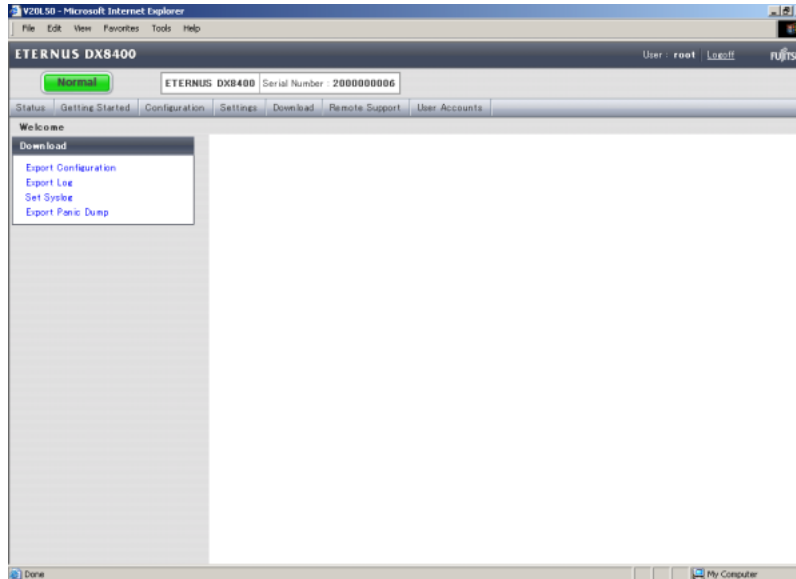
The Settings menu is shown below. See ["Chapter 6 Settings Menu" \(page 448\)](#) for an explanation of its submenus and functions.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

## 1.2.5 Download Menu

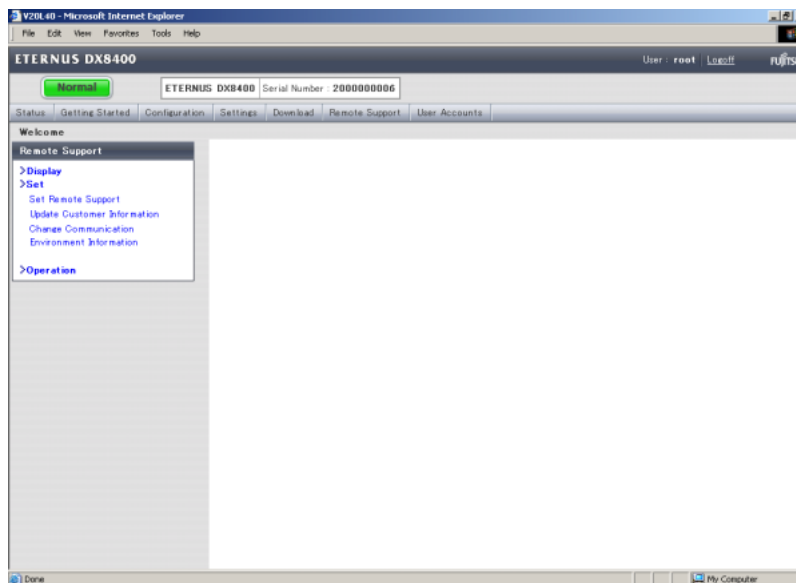
The Download menu is shown below. See ["Chapter 7 Download Menu" \(page 611\)](#) for an explanation of its submenus and functions.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

## 1.2.6 Remote Support Menu

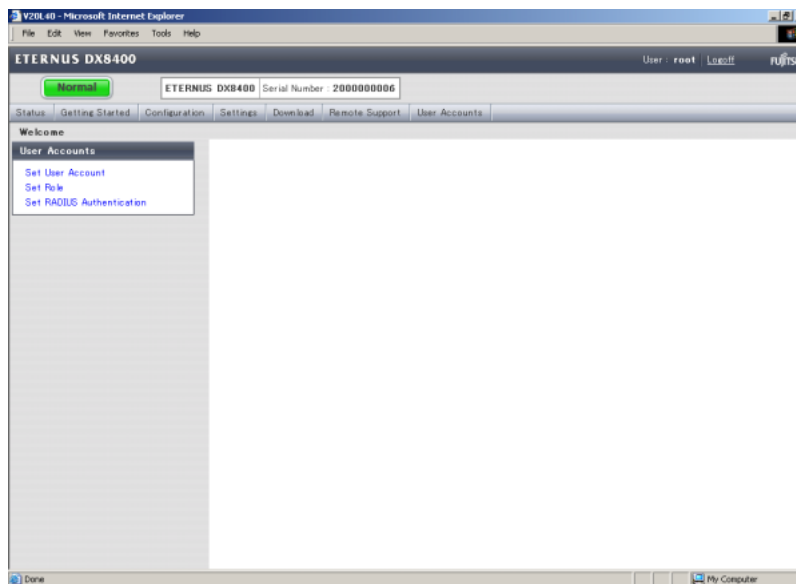
The Remote Support menu is shown below. See ["Chapter 8 Remote Support Menu" \(page 624\)](#) for an explanation of its submenus and functions.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

## 1.2.7 User Accounts Menu

The User Accounts Menu is shown below. See ["Chapter 9 User Accounts Menu" \(page 645\)](#) for an explanation of its submenus and functions.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

## 1.3 Screens when Resource Domains are registered

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the screen that is displayed differs depending on the current user account.

- RAID Group List when logged on the ETERNUS DX400/DX8000 series using a Total Administrator account

Y20L50 - Microsoft Internet Explorer

File Edit View Favorites Tools Help

ETERNUS DX400

User: root Logout

Normal

ETERNUS DX400 Serial Number: 2000000006

Status > Getting Started Configuration Settings Download Remote Support User Accounts

Status > RAID Group List

RAID Group List

Device Status  
Resource Domain List  
RAID Group List  
Thin Provisioning Pool List  
Volume List  
Advanced Copy Status

RAID Group No.	RAID Name	RAID Level	Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	Resource Domain	TPP	
								No. Name	No. Name	
0x000	raid_000	RAID5	Available	CM#0-CPU#0	149504	-	Open, SDV, SDPV	-	Share	-
0x001	raid_001	RAID1	Available	CM#1-CPU#0	149504	-	Open, SDPV	-	Share	-
0x002	raid_002	RAID1+0	Available	CM#0-CPU#1	1048528	-	Open	0x00	domain_0	-
0x003	raid_003	RAID1+0	Available	CM#1-CPU#1	971776	-	-	0x00	domain_0	-
0x004	raid_004	RAID1+0	Copyback Progress	CM#0-CPU#0	1121280	-	Open	0x00	domain_0	-
0x005	raid_005	RAID1	Available	CM#1-CPU#0	1943552	-	Open, SDV	0x00	domain_0	-
0x006	raid_006	RAID5	Available	CM#0-CPU#1	589016	-	SDV	0x01	domain_1	-
0x007	raid_007	RAID1+0	Available	CM#1-CPU#1	1196032	-	Open	0x01	domain_1	-
0x008	raid_008	RAID1+0	Available	CM#0-CPU#0	3360768	-	-	0x01	domain_1	0x01 pool_01
0x009	raid_009	RAID1+0	Available	CM#1-CPU#0	3360768	-	-	0x01	domain_1	0x01 pool_01

20 Groups - Page 1/2

Jump to Page

Next

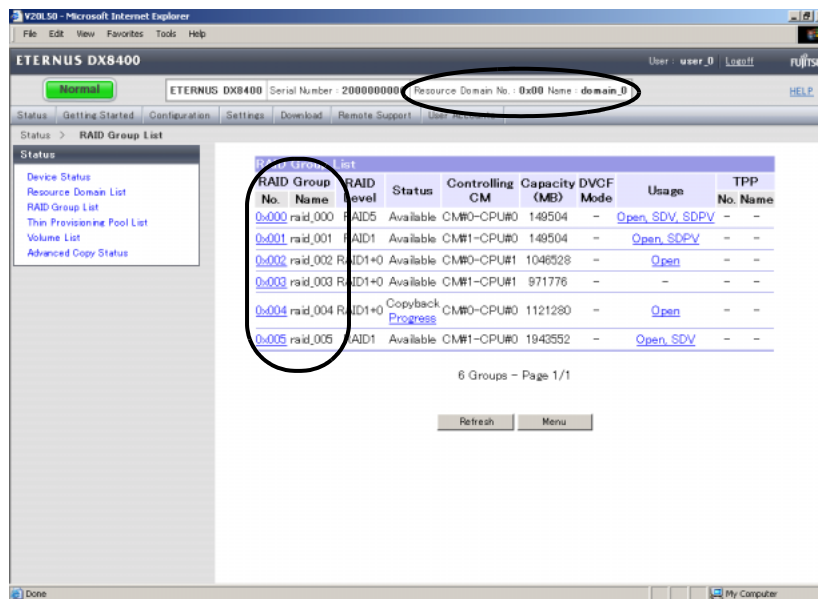
Refresh

Menu

My Computer

- All the RAID Groups that are assigned to the Resource Domains are displayed.
- The "Resource Domain" item is displayed.

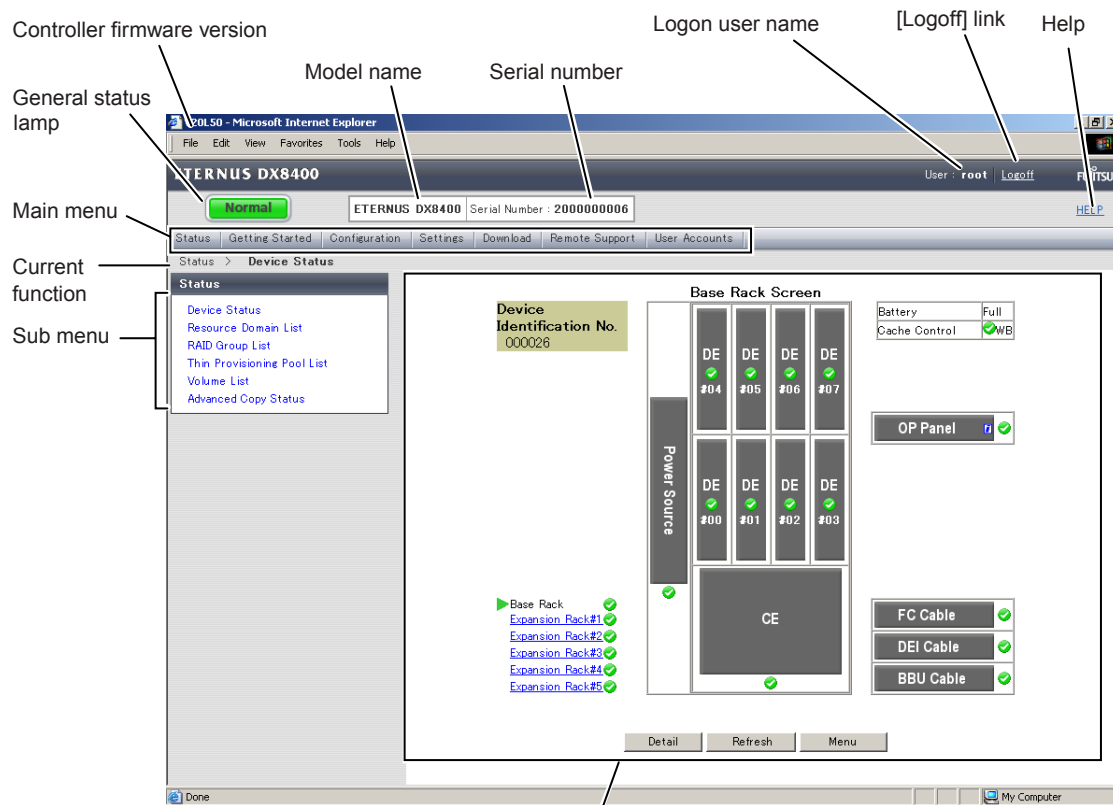
- RAID Group List when logged on the ETERNUS DX400/DX8000 series using a Resource Domain Administrator account



- [Resource Domain No. / Name] is displayed in the next of the status lamp.
- Only RAID Groups that are assigned to the Resource Domain (0x00 in the above screen) of the current user account, and only the RAID Groups that are assigned to the Shared Resource, are displayed.
- The "Resource Domain" item is not displayed.

## 1.4 Screen Operations

This section describes the various screens used to setup and/or perform maintenance on the device using ETERNUSmgr.



From "2.2 Logoff" onward, the procedures use this part of the screen.

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

To view the details of a function during operation, click the [Help] link. A help screen appears. Refer to the error messages displayed during operation in each setting window to deal with errors.

**Caution**



- When using ETERNUSmgr:
  - Unless specified otherwise, never use the Back (←), Forward (→), and Close Window (X), Refresh (↔) browser buttons. Reloading may cause program malfunction.  
The window's buttons can be used to change the size of the window. However, when Netscape is used on Solaris OS, you may need to reload if you change the window size when logging on.
  - It is recommended that the screen resolution be set to 800 × 600 to better display the contents (part names, etc.) and to make it easier to perform setting and maintenance.
  - It is recommended to hide the standard Web browser buttons and address bar to prevent incorrect operations while performing settings and maintenance. Once the logon window is displayed, hide the standard Web browser buttons and address bar.
  - Be sure to logoff after all necessary operations are completed. If it is not logged off, a message will be displayed the next time you try to logon. For details, see ["2.1 Logon" \(page 37\)](#).
- With a registered user account, the available operation menu varies according to the role. For details, see ["9.1.1 Set User Account" \(page 645\)](#). When using the WWW browser:
  - When using a network monitoring tool (such as "Norton Internet Security" and "Norton Personal Firewall"), disable the monitoring tool temporarily.
  - When adding the URL to "Favorites", do not set to "Make available offline".
  - Do not click any button during browser communication.
  - Do not click any button until the browser completes any display process.

■ Screen Display







This section explains status displays, marks and links which appear on the screen.

● General Status Display

The status of each device component is periodically checked and the summed result is shown by the color and status of the device general status lamp. A green lamp indicates the device status is normal, while the other colors indicate a problem with the status of some components.

● General Status of the Device

The general status of the device is indicated by a "lamp image".

Lamp image	Description
 (Green)	Each component is in normal status.
 (Orange)	Component is under maintenance.
 (Yellow)	Preventive maintenance is required for some components.
 (Red)	This lamp is displayed in the following conditions: <ul style="list-style-type: none"> <li>• Component failure is detected. Check the device status.</li> <li>• FC-Loop Down is detected. Check the device status.</li> </ul>
 (Red)	This lamp is displayed in the following conditions: <ul style="list-style-type: none"> <li>• Abnormal status is detected at power-on.</li> <li>• Abnormal status is detected at power-off. The device has not started up normally.</li> <li>• Failed to restore the operating environment at power-on.</li> <li>• The device is abnormal.</li> </ul>
 (Red)	Other unknown

Device monitor runs every five minutes.

General status of the device is determined by the combined status of each sub-component (controller enclosure, drive enclosures, cables, etc.) of the device.

● Display of model and serial number

Model and serial number of the device are displayed by all functions.

Items	Description	Display Contents
Model	Model of the connected device are displayed. <ul style="list-style-type: none"> <li>• ETERNUS DX410</li> <li>• ETERNUS DX440</li> <li>• ETERNUS DX8100</li> <li>• ETERNUS DX8400</li> <li>• ETERNUS DX8700</li> <li>• MODEL unknown</li> </ul> (Caution) When the model cannot be identified, model name will be displayed as "MODEL unknown". In such a case, some functions cannot be used.	(See left)
Serial number	Serial number of the connected device is displayed. Serial No.xxxxxxxxxx (Caution) When the serial number cannot be identified, [-] (hyphen) will be displayed.	Product number (Alphanumeric characters up to 10) or [-]
Resource Domain	Resource Domain of the current user account is displayed. If a Resource Domain name has been registered, the Resource Domain name is also displayed. Resource Domain No.:0xXX (Name:YYYYYYYYYYYYYYYY) (Caution) When Resource Domains are not registered, or when logged on using a Total Administrator account, the "Resource Domain" item is not displayed.	Resource Domain number (0x00 – 0x07) Resource Domain name (up to 16 characters)

● Controller firmware versions

The controller firmware version of the ETERNUS DX400/DX8000 series can be checked in the browser title bar.

Format	Meaning
VxxLyy	Integrated version number of the running firmware is displayed. Vxx: Version Lyy: Level

## 1.5 Menus and Submenus

The following shows the ETERNUSmgr menus, submenu, and functions.  
 The screen differs depending on the type of ETERNUS DX400/DX8000 series.

### ■ ETERNUS DX410/DX440

Main menu	Submenu	Screen
Logon	–	Logon
Status	–	Device Status
		Resource Domain List
		RAID Group List
		Thin Provisioning Pool List
		Volume List
		Advanced Copy Status
Getting Started	–	Hot Spare Disk Settings
		RAID Group Settings
		Thin Provisioning Pool Settings
		Logical Volume Settings
		Open-CA Settings
Configuration	Resource Domain Management	Set Resource Domain
		Assign Numerical Resource
		Assign Resources
	RAID Management	Create RAID Group
		Rename RAID Group
		Change Controlling CM of RAID Group
		Logical Device Expansion
		Delete RAID Group
		Create Logical Volume
		Set Snap Data Pool
		Rename Logical Volume
		Convert Encryption Volume
		Format Logical Volume
		Initialize Snap Data Volume
		RAID Migration
		Progress of RAID Migration
		LUN Concatenation
		Delete Logical Volume
		Create Hot Spare
		Delete Hot Spare

Main menu	Submenu	Screen
Configuration	Thin Provisioning Management	Create/Extend Thin Provisioning Pool
		Set Thin Provisioning Pool Parameters
		Format Thin Provisioning Pool
		Rename RAID Group
		Change Controlling CM of RAID Group
		Delete Thin Provisioning Pool
		Create Logical Volume
		Rename Logical Volume
		Set Thin Provisioning Volume Parameters
		Format Logical Volume
		Thin Provisioning Volume Expansion
		Balance Thin Provisioning Volume
		Progress of Balance Thin Provisioning Volume
		RAID Migration
		Progress of RAID Migration
		Delete Logical Volume
		Create Hot Spare
		Delete Hot Spare
		Register Thin Provisioning License
	Host Interface Management	Set CA Parameters
		Set Host World Wide Name(s)
		Set iSCSI Host
		Set Affinity Group
		Allocate Host-Affinity Group
		Set LUN Mapping
		Set CA Reset Group
		Set Host Response
		Change RA Mode
		Release Reservation
Settings	Setting Configuration	Set Configuration
	Sub System Parameter	Set Sub System Parameters
	Advanced Copy Settings	Set EC/OPC Priority
		Set REC Priority
		Stop EC/OPC Session
		Stop REC Session
		Set Advanced Copy Table Size
		Register Advanced Copy License
		Set REC Buffer
		Create REC Disk Buffer
		Format REC Disk Buffer
		Delete REC Disk Buffer
		Set Advanced Copy Event Notification

Main menu	Submenu	Screen
Settings	SNMP	Set SNMP Agent Environment
		Download Extended MIB Definition File
		SNMP Trap Test
	Eco-mode	Set Common Eco-mode
		Set Eco-mode Schedule
		Set RAID Group-Eco-mode
		Set Thin Provisioning Pool-Eco-mode
	Remote Advanced Copy Configuration	Export Advanced Copy Information
		Create Advanced Copy Information
		Set Advanced Copy Path
		Check Advanced Copy Path
	Setting Encryption	Set Encryption Mode
	Others	Set IP Address for USER Port
		Set IP Address for REMCS Port
		Set Date and Time
		Set Box ID
Download	–	Export Configuration
		Export Log
		Set Syslog
		Export Panic Dump
Remote Support	Display	Display Support Settings
		Communication Log
	Set	Set Remote Support
		Update Customer Information
		Change Communication Environment Information
	Operation	Sending Log
		Pause/Restart Remote Support
User Accounts	–	Set User Account
		Set Role
		Set RADIUS Authentication
Logoff	–	Logoff

■ ETERNUS DX8100/DX8400/DX8700

Main menu	Submenu	Screen
Logon	–	Logon
Status	–	Device Status
		Resource Domain List
		RAID Group List
		Thin Provisioning Pool List
		Volume List
		Advanced Copy Status
Getting Started	–	Hot Spare Disk Settings
		RAID Group Settings
		Thin Provisioning Pool Settings
		Logical Volume Settings
		Open-CA Settings
		Mainframe-CA Settings
Configuration	Resource Domain Management	Set Resource Domain
		Assign Numerical Resource
		Assign Resources
	RAID Management	Create RAID Group
		Rename RAID Group
		Change Controlling CM of RAID Group
		Logical Device Expansion
		Delete RAID Group
		Create Logical Volume
		Set Snap Data Pool
		Rename Logical Volume
		Convert Encryption Volume
		Format Logical Volume
		Initialize Snap Data Volume
		RAID Migration
		Progress of RAID Migration
		LUN Concatenation
		Delete Logical Volume
		Create Hot Spare
		Delete Hot Spare

Main menu	Submenu	Screen
Configuration	Thin Provisioning Management	Create/Extend Thin Provisioning Pool
		Set Thin Provisioning Pool Parameters
		Format Thin Provisioning Pool
		Rename RAID Group
		Change Controlling CM of RAID Group
		Delete Thin Provisioning Pool
		Create Logical Volume
		Rename Logical Volume
		Set Thin Provisioning Volume Parameters
		Format Logical Volume
		Thin Provisioning Volume Expansion
		Balance Thin Provisioning Volume
		Progress of Balance Thin Provisioning Volume
		RAID Migration
		Progress of RAID Migration
		Delete Logical Volume
		Create Hot Spare
		Delete Hot Spare
		Register Thin Provisioning License
	Host Interface Management	Set CA Parameters
		Set Host World Wide Name(s)
		Set iSCSI Host
		Set Affinity Group
		Allocate Host-Affinity Group
		Set LUN Mapping
		Set CA Reset Group
		Set Host Response
		Set LCU
		Set IOA Mapping
		Change RA Mode
		Release Reservation
Settings	Setting Configuration	Set Configuration
	Sub System Parameter	Set Sub System Parameters

Main menu	Submenu	Screen
Settings	Advanced Copy Settings	Set EC/OPC Priority
		Set REC Priority
		Stop EC/OPC Session
		Stop REC Session
		Set Advanced Copy Table Size
		Register Advanced Copy License
		Set REC Buffer
		Create REC Disk Buffer
		Format REC Disk Buffer
		Delete REC Disk Buffer
		Set Advanced Copy Event Notification
	SNMP	Set SNMP Agent Environment
		Download Extended MIB Definition File
		SNMP Trap Test
	Eco-mode	Set Common Eco-mode
		Set Eco-mode Schedule
		Set RAID Group-Eco-mode
		Set Thin Provisioning Pool-Eco-mode
	Remote Advanced Copy Configuration	Export Advanced Copy Information
		Create Advanced Copy Information
		Set Advanced Copy Path
		Check Advanced Copy Path
	Setting Encryption	Set Encryption Mode
	Others	Set IP Address for USER Port
		Set IP Address for REMCS Port
		Set Date and Time
		Set Box ID
Download	—	Export Configuration
		Export Log
		Set Syslog
		Export Panic Dump
Remote Support	Display	Display Support Settings
		Communication Log
	Set	Set Remote Support
		Update Customer Information
		Change Communication Environment Information
	Operation	Sending Log
		Pause/Restart Remote Support

Main menu	Submenu	Screen
User Accounts	–	Set User Account
		Set Role
		Set RADIUS Authentication
Logoff	–	Logoff

## Chapter 2 Logon/Logoff

This chapter describes how to logon to and logoff from ETERNUSmgr.

### 2.1 Logon

Logon to ETERNUSmgr to start operation.

The menu displayed pertains to the logged on user accounts' role.

**Caution**

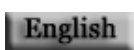

- A role is assigned to a user account. Available functions vary depending on the role. A user can use allowed functions for each role. Multiple roles may be assigned to a user account. Select a role to be used when logging on with a user account with multiple roles.  
In this manual, "system administrator" indicates the user who has update authority (other than [Read Only]).
- When logged on using a Resource Domain Administrator account, the following functions are not displayed regardless of the assigned role.
  - Set Resource Domain
  - Assign Numerical Resource
  - Assign Resources
  - Change RA Mode
  - Set Configuration
  - Set REC Priority
  - Set REC Buffer
  - Create REC Disk Buffer
  - Format REC Disk Buffer
  - Delete REC Disk Buffer
  - Set Advanced Copy Event Notification
  - Export Advanced Copy Information
  - Create Advanced Copy Information
  - Set Advanced Copy Path
  - Check Advanced Copy Path
  - Display Support Settings
  - Communication Log
  - Set Remote Support
  - Update Customer Information
  - Change Communication Environment Information
  - Sending Log
  - Pause/Restart Remote Support

- An error will occur, if logged on in the following situations. Check the error message first, and either forcibly log off all users, or wait and retry logon later.
  - When the last operation was terminated without logging off.
  - When a system administrator or maintenance engineer has already logged on.
  - When another application is already logging on.



Note

- The starting screen of the ETERNUSmgr differs depending on the language setting of the browser. To switch to Japanese mode, click the [Japanese] button. To switch to English mode, click the [English] button.

Items	Description
	Jumps to the English Logon screen of ETERNUSmgr. All the screens after logon will be displayed in English.
	Jumps to the Japanese Logon screen of ETERNUSmgr. All the screens after logon will be displayed in Japanese.

- Refer to the ["9.1.2 Set Role" \(page 655\)](#) menu for allowed functions for each role. The [Set Role] function can be started up when logging on with a user account which has default role [account] or category [Account Settings].

The following explains the logon procedures.

## Procedure

- 1 Enter [User Name] and [Password] on the logon screen and click the [Logon] button.

[User Name] and [Password] differ, depending on the account type.

The default system administrator user name and password are as follows:

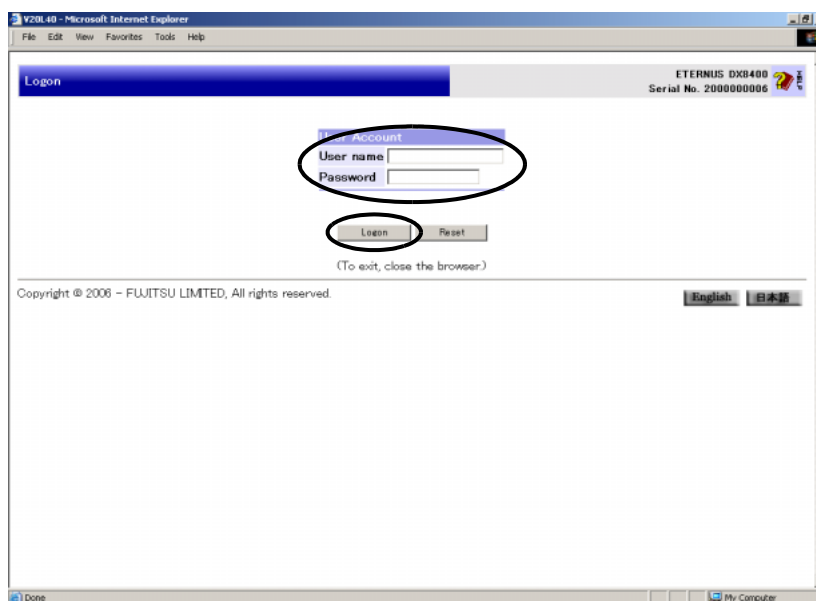
- User Name: root
- Password: root (Default)

For details on general user accounts, refer to ["9.1.1 Set User Account" \(page 645\)](#).

### Caution

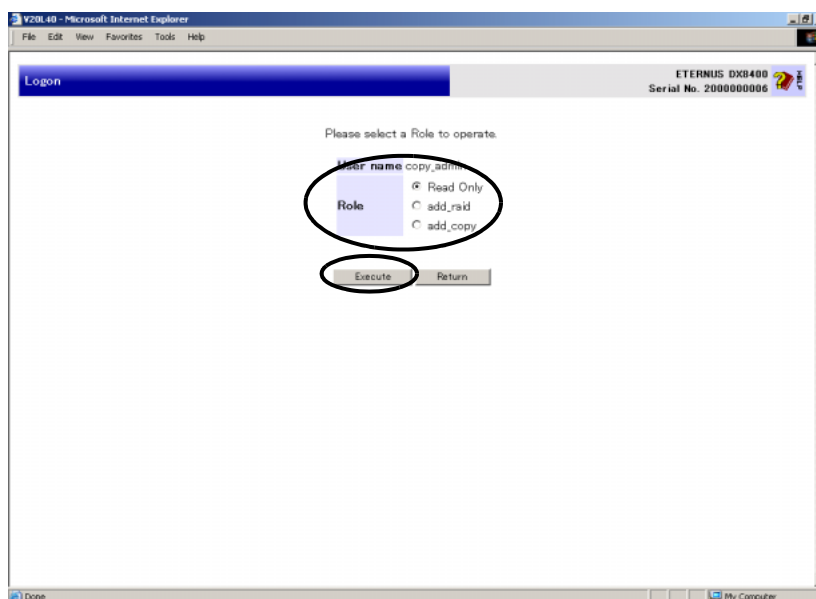


If an input error screen appears, enter user name and password again to perform the logon operation.  
When RADIUS Authentication is used, an input error screen appears if authentication fails.



→ When logged on with a user account that has multiple roles, select the role.  
The [Logon (Select Role)] screen appears.

**2** Select the role, and click the [Execute] button.



**Caution**



When logged on with a user account that has multiple roles, selecting a role is required. When the user account has only one role, the [Logon (Select Role)] screen does not appear.

- When there are no other users logged on

→ The [Menu] screen is displayed.

### Caution

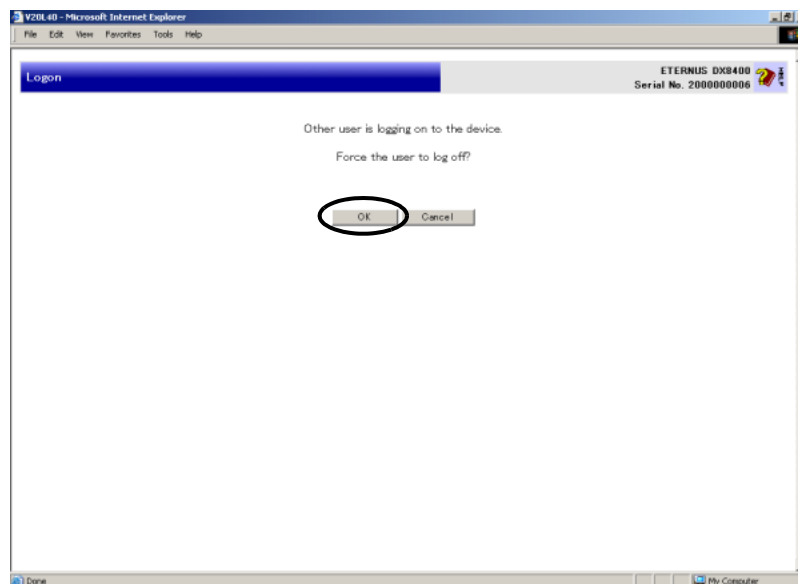


- When the ETERNUS DX400/DX8000 series is under maintenance work, a message to that effect appears. Clicking the [Cancel] button displays a message such as "Under Maintenance". Log off from the ETERNUSmgr and wait until the maintenance operation is complete.
- When the ETERNUS DX400/DX8000 series is being set up, a message to that effect appears. Clicking the [OK] button displays a progress report. Wait until the setup procedure is complete. If the [Cancel] button is clicked, ETERNUSmgr does not produce a progress report. Click the function menu link. If the same message appears again, click the [OK] button. No other menu can be executed until the setup procedure completes.
- When the ETERNUS DX400/DX8000 series is under maintenance work or being set up, device status may be checked by clicking the [Device Status], [RAID Group List], or [Volume List] links.

- When attempting to log on, another system administrator, maintenance engineer, or application is already logged on.

→ The [Logon (Forcible Logon)] screen appears.

To forcibly log off other users in order to logon, click the [OK] button to continue the logon operation.



### Caution

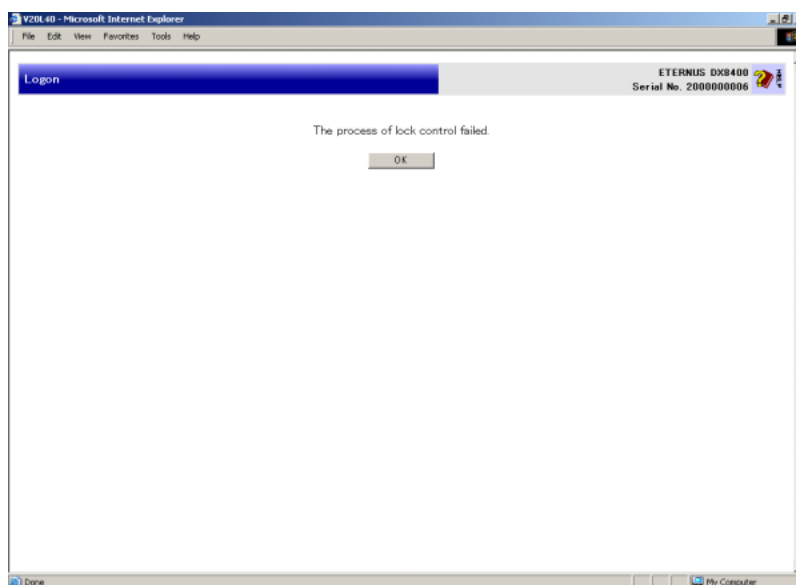


The other users will not be notified that another user forcibly logged on.

■ When recovering

→ The [Logon (Lock Control)] screen appears.

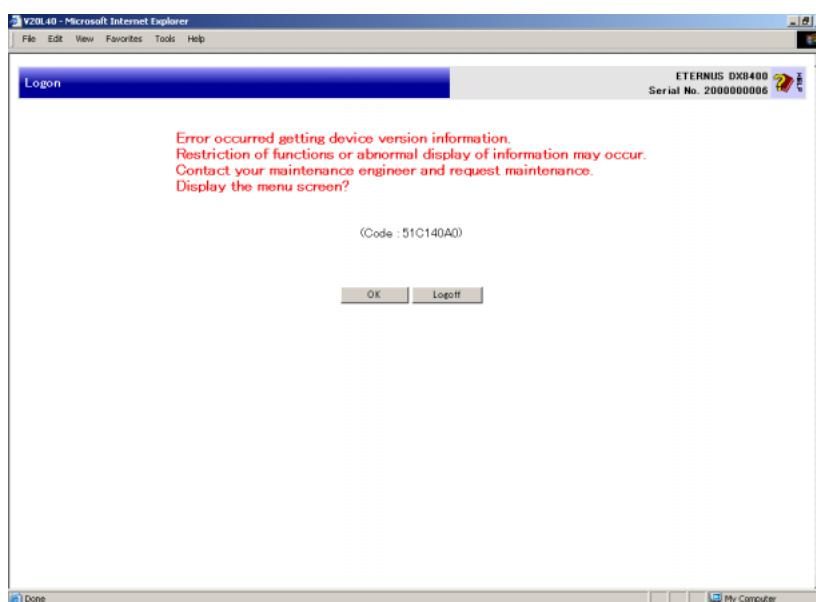
When the number of the lock command retry attempts exceeds a certain number, the recovery process fails, and the [Logon (Lock Control Error)] screen appears.



■ When an error occurs while acquiring the model information

→ The [Logon (Error Notice Logon)] screen appears.

To display the [Menu] screen, click the [OK] button. To log off, click the [Logoff] button.



End of procedure

## 2.2 Logoff

To finish operations, log off the ETERNUSmgr.

**Caution**



If you close the window without logging off, the forcible logon message will be displayed at the next logon. You must log off when finishing operation with ETERNUSmgr.

Operating procedures for logoff are explained as follows.

### Procedure

- 1 Click the [Logoff] link.  
→ The [Logoff] screen appears.
- 2 Click the [OK] button.



End of procedure

## Chapter 3 Status Menu

This chapter describes the functions of the Status menu.

### 3.1 Device Status

This screen displays the status of each component that configures ETERNUS DX400/DX8000 series, such as controller enclosure (CE), drive enclosure (DE), cables, etc.

#### ■ Screen Display



This section explains status displays, marks and links which appear on the screen.

##### ● Detailed Information Icon

Clicking the  icon displays detailed information of the component in another window.

##### ● Component Display

Display of components differs between undefined/uninstalled cases and other cases.

Component Image	State
	Undefined/Uninstalled
	Others

Device monitor runs every five minutes.







##### ● Component Status Display

A green status LED indicates normal status, and the other colors indicate some failures. When moving the cursor to the LED of each component, the status is displayed.



● Status of Each Component

The component status is displayed by the "LED image".

LED image	State	Description
 (Green)	Normal	Each component is in normal status.
 (Blue)	Warning	Some components are installed but unused. (Note) When the components are disk drives, the [Normal (Green)] lamp is displayed instead of the [Warning (Blue)] lamp for the general status of the device.
 (Orange)	Maintenance	Component is under maintenance.
 (Yellow)	Warning	Preventive maintenance is required for some components.
 (Red)	Alarm	Component failure is detected.
 (Red)	Error	Other unknown

The component status LEDs is not updated automatically, but rather when the [Refresh] button is clicked or the Device Status screen is displayed.

Each LED image is determined by integrating the component status.

● Device Identification No.

The device identification number is displayed in the Base Rack screen.

It is used to identify the ETERNUS DX400/DX8000 series when referring to the ETERNUS Multipath Driver path information and message.

Format	Meaning
xxxxxx	Device identification number is displayed (six ASCII code characters).

The following procedure explains how to display and check the status of the device.

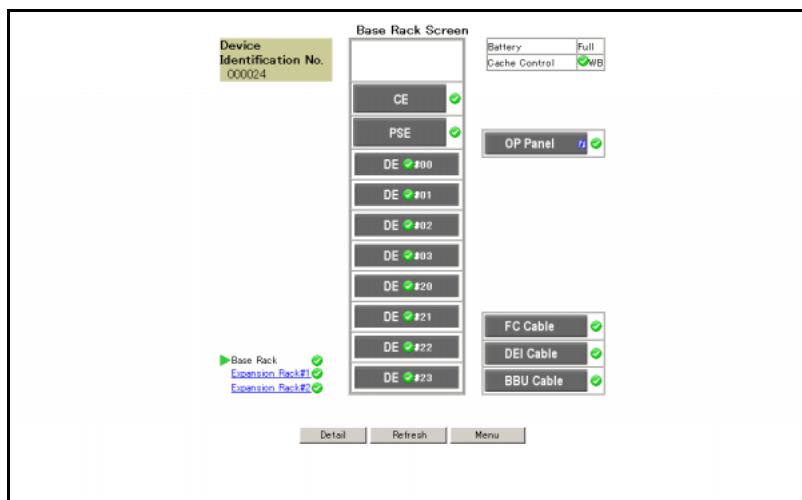
The screens displayed during this operation will vary depending on the model. Especially when the contents of the ETERNUS DX400/DX8000 series screens are different, both screens are described in this manual.

In this case, the ETERNUS DX440 is described as the ETERNUS DX410/DX440, and the ETERNUS DX8400 is described as the ETERNUS DX8100/DX8400/DX8700.

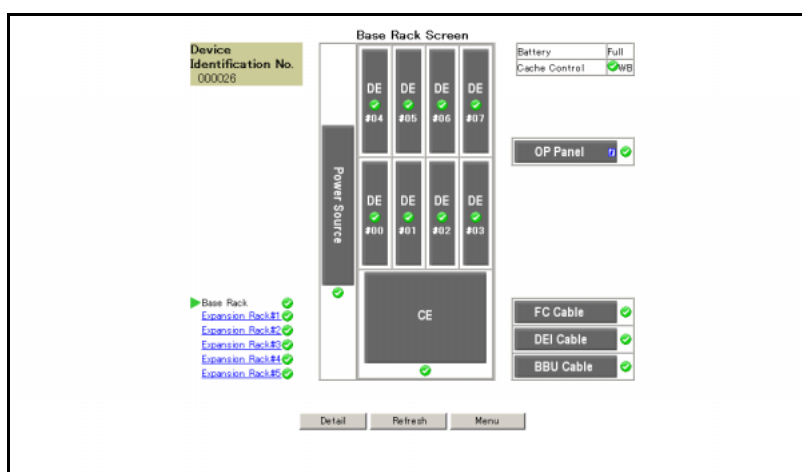
## Procedure

- 1 Click [Device Status] in the [Status] menu.  
→ The [Device Status (Base Rack)] screen appears.

■ for ETERNUS DX410/DX440



■ for ETERNUS DX8100/DX8400/DX8700



**Caution**

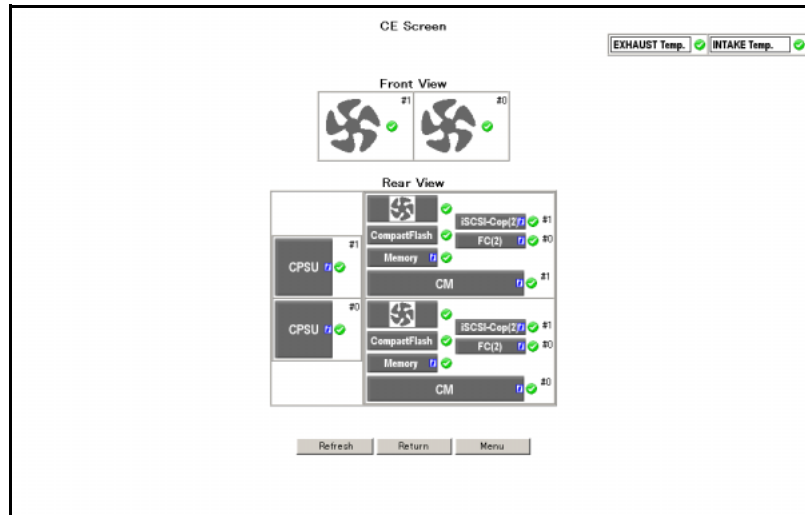
As for ETERNUS DX8100, [Device Status (Rack Screen)] is displayed because they have no Expansion Rack. Hereinafter, if it is not necessary to describe separately, "Base Rack screen" and "Rack screen" are described as "Base Rack screen".

## 2 Click the image of each component in the Base Rack screen, and check the component status.

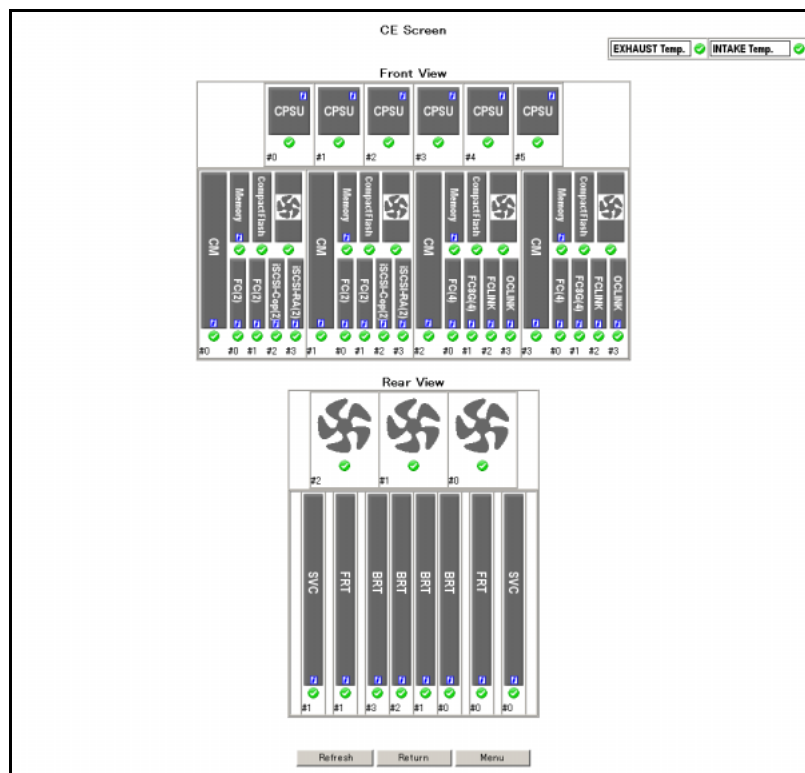
- CE: Controller Enclosure screen

Clicking the CE image on the Base Rack screen enables checking the CE.

- for ETERNUS DX410/DX440



- for ETERNUS DX8100/DX8400/DX8700



- CPSU details screen

VID10 - Microsoft Internet Explorer

## Info

<b>CPSU Info</b>	<b>Location</b>	<b>CPSU#0</b>
	<b>Status</b>	Online(0xE001)

Close

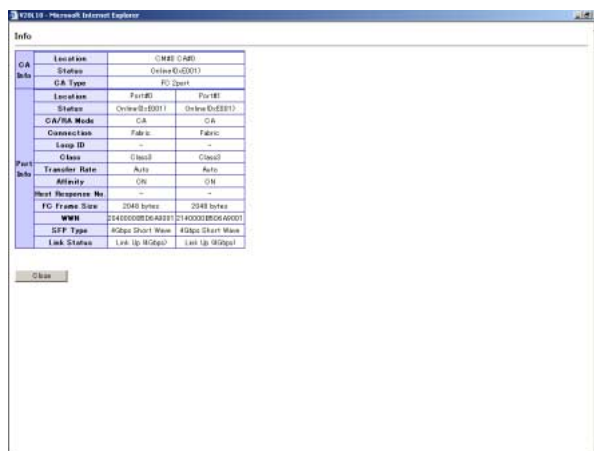
V10L10 - Microsoft Internet Explorer							
Info							
CM Info	Location	CM#0					
	Status	Online(0xE001)		Online(0xE001)			
	Factor Code	0x0000		0x0000			
	Serial Number	30303030303030303030303030303030					
	Hardware	30303030					
	Active EC	EC1					
	Next EC	EC2					
	Firmware (EC1)	V10L10-4270					
	Firmware (EC2)	V10L10-4240					
	Installed Memory Size	24576MB					
DI Info	Location	Port#0	Port#1	Port#2	Port#3		
	Status	Online(0xE001)	Online(0xE001)	Online(0xE001)	Online(0xE001)		
	Factor Code	0x00	0x00	0x00	0x00		
	Location	Port#4	Port#5	Port#6	Port#7		
	Status	Online(0xE001)	Online(0xE001)	Online(0xE001)	Online(0xE001)		
	Factor Code	0x00	0x00	0x00	0x00		
DMA Info	Location	NP#0		NP#1			
	Status	Online(0xE001)		Online(0xE001)			
	Factor Code	0x00		0x00			
	Location	SP#0		SP#1			
	Status	Online(0xE001)		Online(0xE001)			
	Factor Code	0x00		0x00			

Info

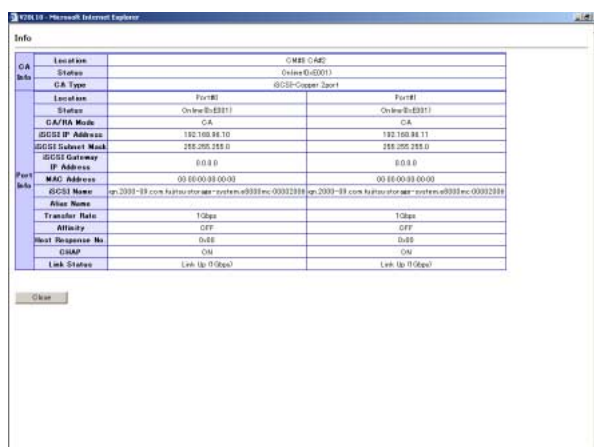
	Location	Slot#0	Slot#1
Memory Info	Location	Slot#0	Slot#1
	Status	Online(0xE001)	Online(0xE001)
	Memory Size	2048MB	2048MB
	Location	Slot#2	Slot#3
	Status	Online(0xE001)	Online(0xE001)
	Memory Size	2048MB	2048MB
	Location	Slot#4	Slot#5
	Status	Online(0xE001)	Online(0xE001)
	Memory Size	4096MB	4096MB
	Location	Slot#6	Slot#7
	Status	Online(0xE001)	Online(0xE001)
	Memory Size	4096MB	4096MB

Close

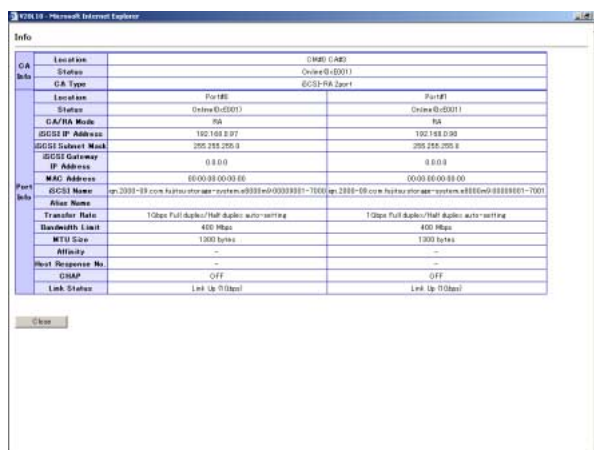
- CA details screen (FC)  
Clicking the FC image on the CE screen enables checking the FC details.



- CA details screen (iSCSI-CA)  
Clicking the iSCSI-CA image on the CE screen enables checking the iSCSI-CA details.



- CA details screen (iSCSI-RA)  
Clicking the iSCSI-RA image on the CE screen enables checking the iSCSI-RA details.



- CA details screen (FCLINK)  
Clicking the FCLINK image on the CE screen enables checking the FCLINK details.

Info	
Location	CMR2 CARS
Status	Online(0xE001)
CA Type	FCLINK
Location	Port#1
Status	Online(0xE001)
OS Type	Fujitsu 1
Part Mode	CU
Transfer Rate	10Mbps
Link Status	Link Up
Node ID	30010909 AFBCD 8E7 240 1e DC244670135 201030010203 FDC6A B10 345 M123456789012 1183

- CA details screen (OCLINK)  
Clicking the OCLINK image on the CE screen enables checking the OCLINK details.

Info	
Location	CMR2 CARS
Status	Online(0xE001)
CA Type	OCLINK
Location	Chg#0
Status	Online(0xE001)
OS Type	Fujitsu 2
Part Mode	CU
Link Status	Link Up
Node ID	30010909 AFBCD 8E7 240 1e DC244670135 201060010508 ABCDEF B8C 563 w 0146012376AC 1810

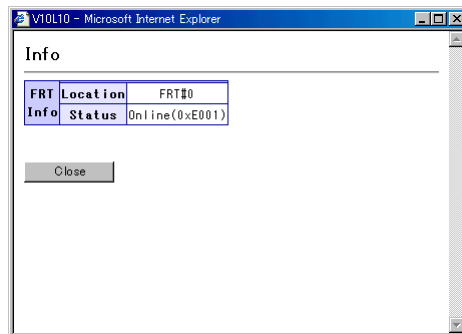
- SVC details screen (For ETERNUS DX8400 and DX8700 only)  
Clicking the SVC image on the CE screen enables checking the SVC details.

Info

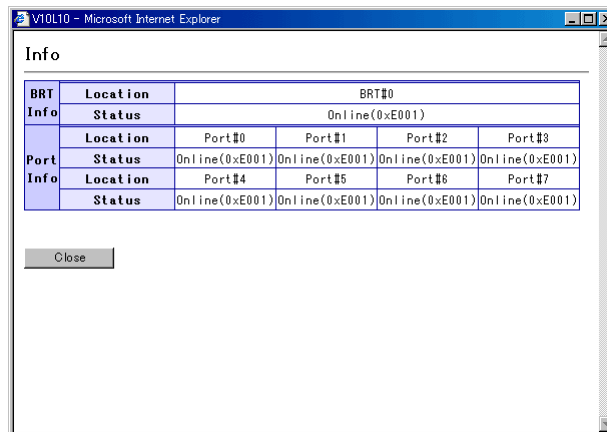
SVC	Location	SVC#0
Info	Status	Online(0xE001)

Close

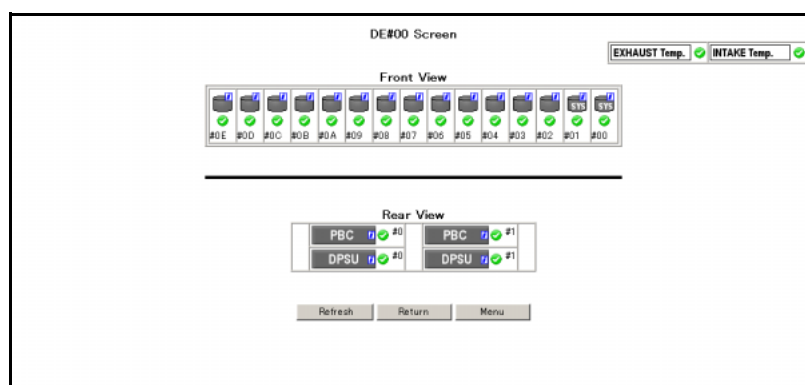
- FRT details screen (For ETERNUS DX8400 and DX8700 only)  
 Clicking the FRT image on the CE screen enables checking the FRT details.



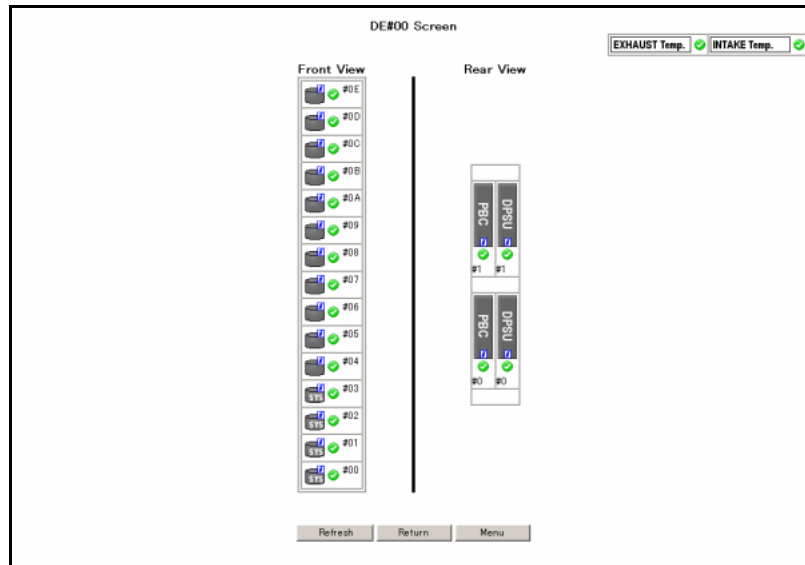
- BRT details screen (For ETERNUS DX8400 and DX8700 only)  
 Clicking the BRT image on the CE screen enables checking the BRT details.



- DE: Drive Enclosure screen  
 Clicking a DE image on the Base Rack screen enables checking the DE details.
  - for ETERNUS DX410/DX440



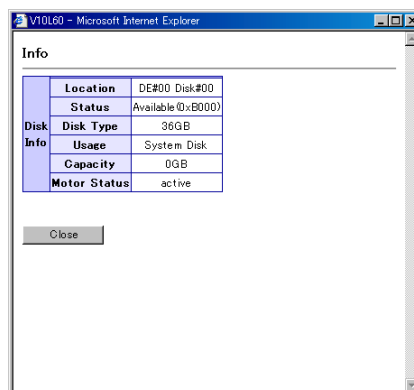
- for ETERNUS DX8100/DX8400/DX8700



Also, clicking a component in the DE enables checking the details of clicked component.

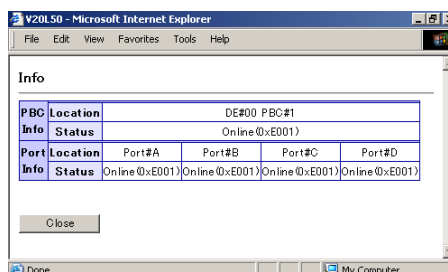
- Disk details screen

Clicking a Disk image on the DE screen enables checking the disk details.



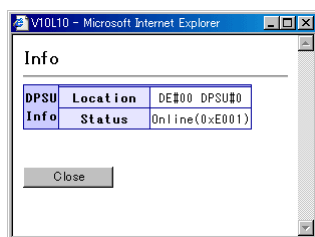
- PBC details screen

Clicking the PBC image on the DE screen enables checking the PBC details.



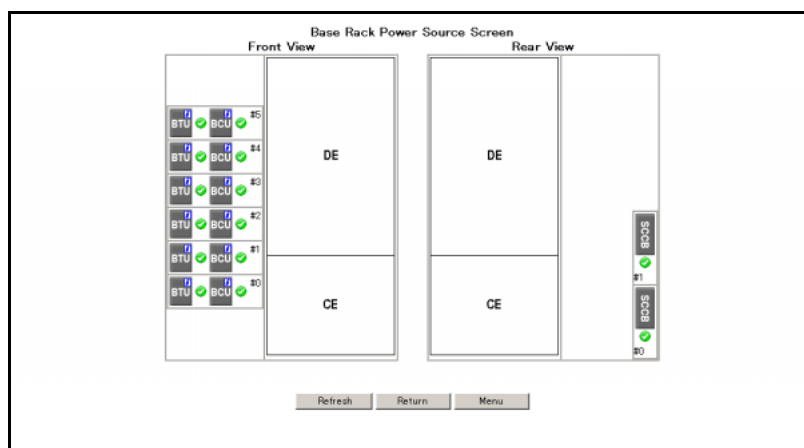
- DPSU details screen

Clicking the DPSU image on the DE screen enables checking the DPSU details.



• Base Rack Power Source screen (For ETERNUS DX8400 and DX8700 only)

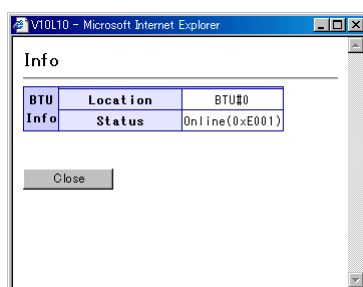
Clicking the Power Source image on the Base Rack screen enables checking the power source.



Also, clicking a component in the Base Rack Power Source screen enables checking the details of clicked component.

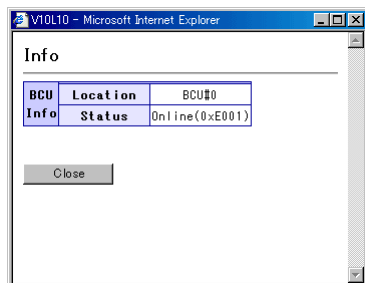
- BTU details screen

Clicking the BTU images on the Base Rack Power Source screen enables checking the BTU details.

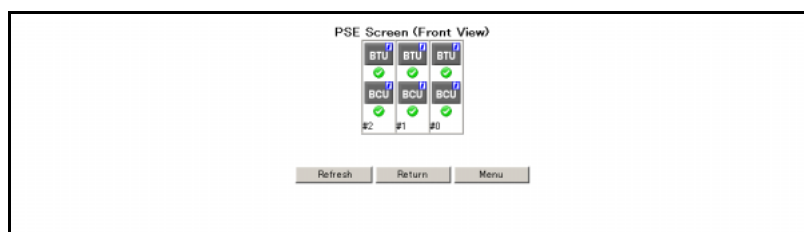


- BCU details screen

Clicking the BCU image on the Base Rack Power Source screen enables checking the BCU details.



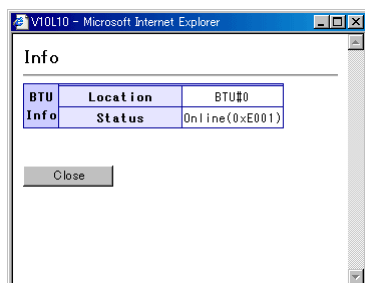
- PSE screen (For ETERNUS DX410/DX440, and ETERNUS DX8100 only)  
Clicking the PSE image on the Base Rack screen enables checking the PSE.



Also, clicking a component in the PSE screen enables checking the details of clicked component.

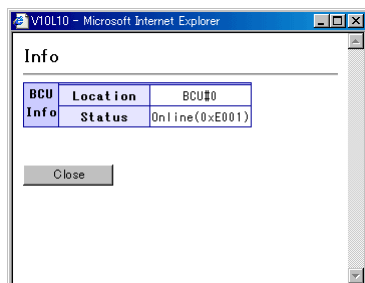
- BTU details screen

Clicking the BTU image on the PSE screen enables checking the BTU details.



- BCU details screen

Clicking the BCU image on the PSE screen enables checking the BCU details.



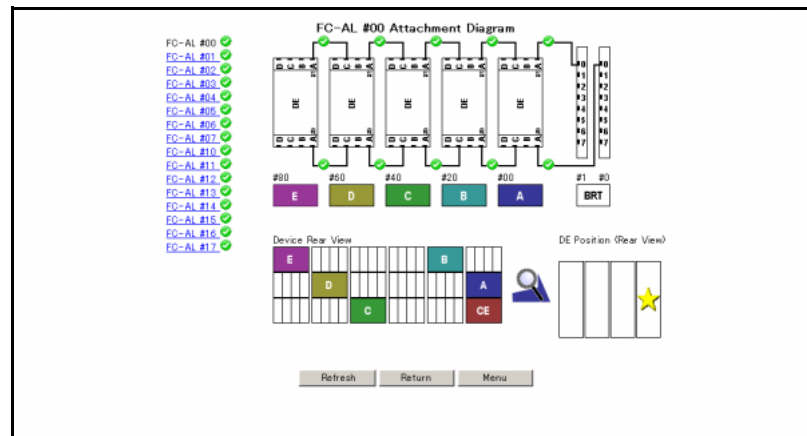
- FC-AL List screen

Clicking the FC Cable image on the Base Rack screen enables checking the FC cables.

FC-AL List	
FC-AL #	Connected DE(s)
FC-AL#00	DE #00 - #20 - #40 - #60 - #80
FC-AL#01	DE #01 - #21 - #41 - #61 - #81
FC-AL#02	DE #02 - #22 - #42 - #62 - #82
FC-AL#03	DE #03 - #23 - #43 - #63 - #83
FC-AL#04	DE #04 - #24 - #44 - #64
FC-AL#05	DE #05 - #25 - #45 - #65
FC-AL#06	DE #06 - #26 - #46 - #66
FC-AL#07	DE #07 - #27 - #47 - #67
FC-AL#10	DE #10 - #30 - #50 - #70
FC-AL#11	DE #11 - #31 - #51 - #71
FC-AL#12	DE #12 - #32 - #52 - #72
FC-AL#13	DE #13 - #33 - #53 - #73
FC-AL#14	DE #14 - #34 - #54 - #74
FC-AL#15	DE #15 - #35 - #55 - #75
FC-AL#16	DE #16 - #36 - #56 - #76
FC-AL#17	DE #17 - #37 - #57 - #77

Refresh Return Menu

Clicking the [FC-AL#xx] link enables checking the FC-AL Attachment diagram.



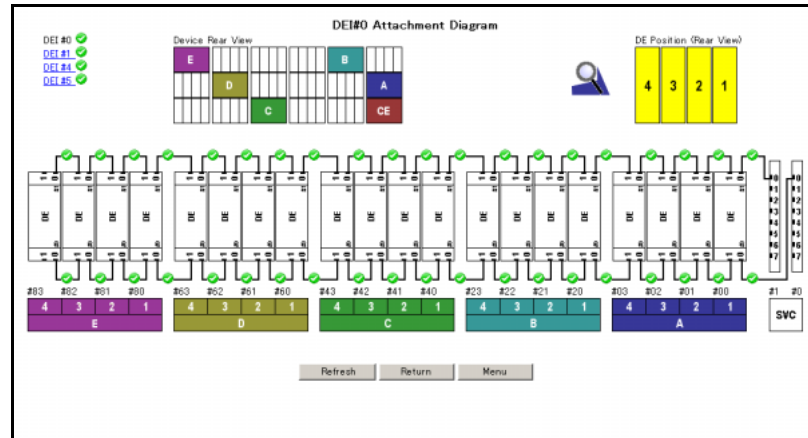
- DEI List screen (For ETERNUS DX8400 and DX8700 only)

Clicking the DEI Cable image on the Base Rack screen enables checking the DEI cables.

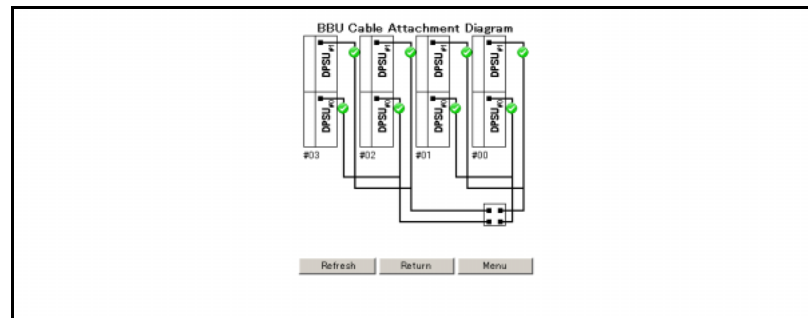
DEI List	
DEI #	Connected DE(s)
DEI#0	DE #00 - #01 - #02 - #03 - #20 - #21 - #22 - #23 - #40 - #41 - #42 - #43 - #60 - #61 - #62 - #63 - #80 - #81 - #82 - #83
DEI#1	DE #04 - #05 - #06 - #07 - #24 - #25 - #26 - #27 - #44 - #45 - #46 - #47 - #64 - #65 - #66 - #67
DEI#4	DE #10 - #11 - #12 - #13 - #30 - #31 - #32 - #33 - #50 - #51 - #52 - #53 - #70 - #71 - #72 - #73
DEI#5	DE #14 - #15 - #16 - #17 - #34 - #35 - #36 - #37 - #54 - #55 - #56 - #57 - #74 - #75 - #76 - #77

Refresh Return Menu

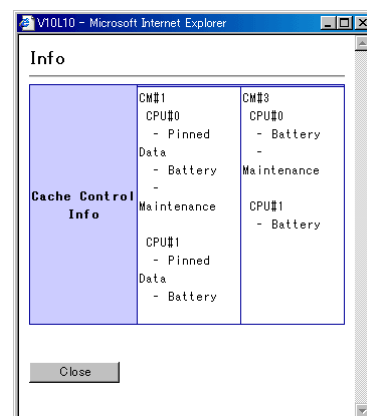
- **DEI Attachment Diagram screen**  
For ETERNUS DX8100 click the DEI Cable image on the Rack screen, for ETERNUS DX410 and DX440, click the DEI Cable image on the Base Rack screen, for ETERNUS DX8400 and DX8700, click the DEI# on the DEI List screen, to check the DEI Attachment Diagram screen.



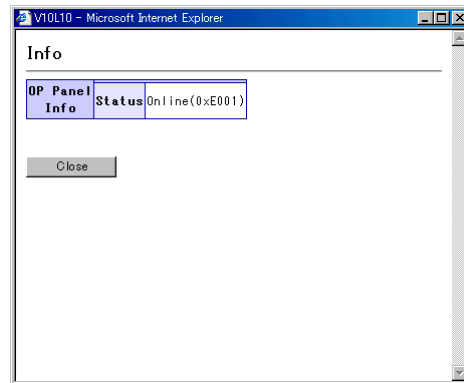
- **BBU Cable Attachment Diagram screen**  
Clicking the BBU Cable image on the Base Rack screen enables checking the BBU Cables.



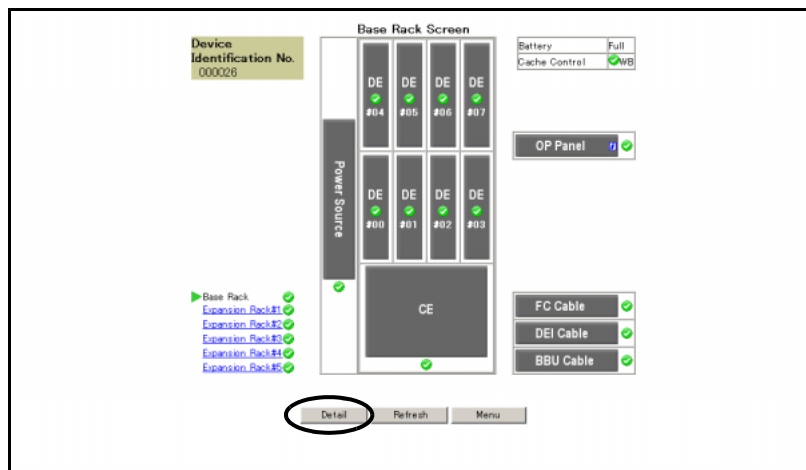
- **Cache Control details screen**  
When the device is in the Write Through Mode, the [WT] link is displayed on the Base Rack screen. Clicking the WT link on the Base Rack screen enables checking the Cache Control details.



- OP Panel details screen  
Clicking the OP Panel image on the Base Rack screen enables checking the OP Panel.

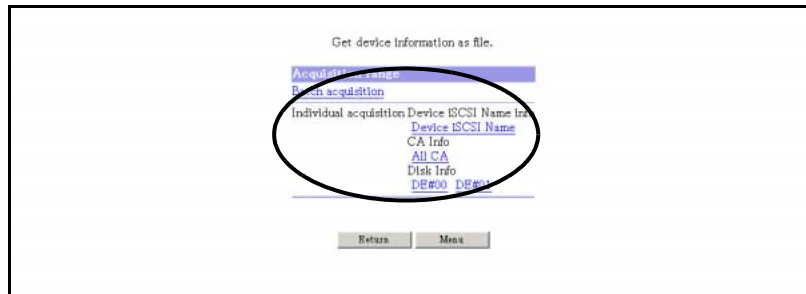


- 3** To get the iSCSI Name information, CA information, and Disk information of the device, click the [Detail] button on the Base Rack screen.



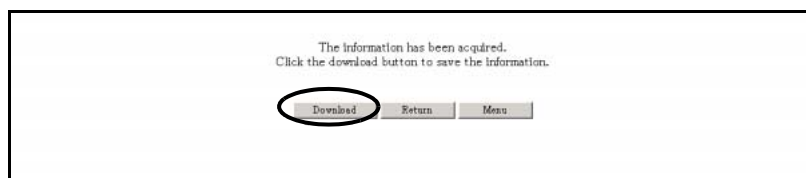
- The [Device Status (Select Device Information Collection)] screen appears.  
Refer to ["A.1.1 Device Status \(Collect Device Information\) Screen" \(page 669\)](#) for details about device information that can be collected.

- 4** To acquire the information all at once, click the [Batch acquisition] link. To select and acquire information, click the selected information link of [Individual acquisition].



→ After clicking each link, when acquiring device information the [Device Status (Acquiring Device Information)] screen appears. After acquiring the device information, the [Device Status (Save Device Information)] screen appears.

- 5** Click the [Download] button and save the acquired information.



**Caution**



The device information must be saved within one minute from the time the [Download] button is clicked. If the download dialog box is left open for over a minute, the download operation may terminate with an unsuccessfully downloaded file.

If the downloaded file cannot be opened, the download may have failed, so try the download again.

- 6** When checking the Expansion Rack status, click the "Expansion Rack#x" (x is an expansion rack number), and perform the same procedure as for the Base Rack.

**End of procedure**

## 3.2 Resource Domain List

The list of Resource Domains registered in the ETERNUS DX400/DX8000 series is displayed.

### Caution



- When Resource Domains are not registered in the ETERNUS DX400/DX8000 series, the [Resource Domain List] menu is not displayed.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed Resource Domain information differs depending on the current user account.
  - When logged on using a Total Administrator account, all the Resource Domain information registered in the ETERNUS DX400/DX8000 series is displayed.
  - When logged on using a Resource Domain Administrator account, only the information for the relevant Resource Domain is displayed.



### Note

Resource Domains can be created using the [Set Resource Domain] function.

The following explains procedures to display the Resource Domain List.

### Procedure

- 1 Click [Resource Domain List] in the [Status] menu.  
→ The [Resource Domain List (Initial)] screen appears.

Resource Domain List										
Resource Domain		Status	TPPs	RAID Groups	Assigned Resources/Assignable Resources					
No.	Name				Logical Volume	Host WWN	iSCSI Host	Affinity Group	Host Response	ECO Mode Schedule
0x00	domain_0	Normal	32	128	512/1024	32/64	8/32	64/128	64/128	3/12
0x01	domain_1	Normal	16	64	256/1024	16/64	8/32	32/64	32/64	3/12
0x02	domain_2	Normal	8	32	128/1024	8/64	8/32	24/32	24/32	3/12

Refresh Menu

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

Refer to ["A.2.1 Resource Domain List \(Initial\) Screen" \(page 671\)](#) for screen details.

The following items can be checked:

- Resource Domain No.  
The Resource Domain number
- Resource Domain Name  
The name of the Resource Domain
- Status  
The status of the Resource Domain
- TPPs  
The number of Thin Provisioning Pools assigned to the Resource Domain
- RAID Groups  
The number of RAID groups assigned to the Resource Domain
- Assigned Resources / Assignable Resources  
The number of the following management target resources that have been assigned and the maximum number of the management target resources which can be assigned to the Resource Domains
  - Logical Volume
  - Host WWN
  - iSCSI Host
  - Affinity Group
  - Host Response
  - Eco-mode Schedule

**2** Click the [Refresh] button to check the latest status.

**3** Click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

## 3.3 RAID Group List

This screen displays the list of RAID Groups and the detailed information of each RAID Group created in the ETERNUS DX400/DX8000 series.

This function facilitates display of the status of each RAID Group and the Logical Volumes of each RAID Group, aiding system administrators in their work.

### Caution



- When no RAID Group is created in the ETERNUS DX400/DX8000 series, a message to that effect is displayed. Click the [OK] button to return to the [Menu] screen.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed RAID Groups differ depending on the current user account.
  - When logged on using a Total Administrator account, all the RAID Groups that are assigned to Resource Domains are displayed.
  - When logged on using a Resource Domain Administrator account, only the RAID Groups that are assigned to the relevant Resource Domain, and only the RAID Groups that are assigned to the Shared Resource, are displayed.



### Note

- It is possible to check the format progress status, encrypt progress status, and detailed information for Snap Data volume and Snap Data Pool volume from the [RAID Group List (Volume List in the RAID Group)] screen for the RAID Group, as in the case of the [Volume List] function.
- Check from the [Volume List] function to display all the Logical Volumes created in the ETERNUS DX400/DX8000 series.
- Check from the [Thin Provisioning Pool List] function to display the list of Thin Provisioning volumes in the RAID Group that is registered in the Thin Provisioning Pool.

The following explains procedures to display/set the RAID Group List.

## Procedure

- 1 Click [RAID Group List] in the [Status] menu.  
 → The [RAID Group List (Initial)] screen appears.

RAID Group List									
RAID Group No.	Name	RAID Level	Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP	
No.	Name	Level						No.	Name
0-000	raid_000	RAID5	Available	CM#0-CPU#0	149504	-	Open, SDV, SDPV	-	-
0-001	raid_001	RAID1	Available	CM#1-CPU#0	149504	-	Open, SDPV	-	-
0-002	raid_002	RAID1+0	Available	CM#0-CPU#1	1046528	-	Open	-	-
0-003	raid_003	RAID1+0	Available	CM#1-CPU#1	1120296	-	RCE	-	-
0-004	raid_004	RAID1+0	Copyback Progress	CM#0-CPU#0	1121280	-	Open	-	-
0-005	raid_005	RAID1	Available	CM#1-CPU#0	1943592	-	Open, SDV	-	-
0-006	raid_006	RAID5	Available	CM#0-CPU#1	599016	-	SDV	-	-
0-007	raid_007	RAID1+0	Available	CM#1-CPU#1	1196032	-	Open	-	-
0-008	raid_008	RAID1+0	LDE Progress	CM#0-CPU#0	3360788	-	-	0x01	pool_01
0-009	raid_009	RAID1+0	Available	CM#1-CPU#0	3360788	-	-	0x01	pool_01

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Jump to Page Next

Refresh Menu

Refer to "[A.3.1 RAID Group List \(Initial\) Screen](#)" ([page 673](#)) for screen details.

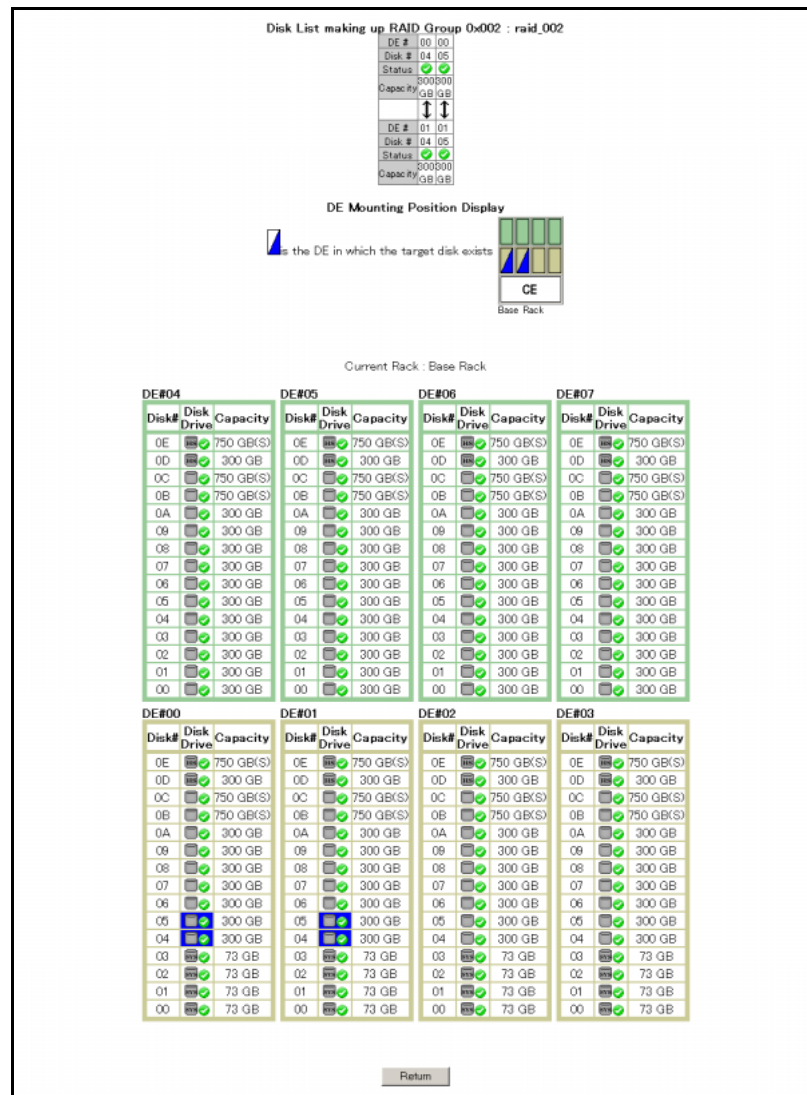
The following items can be checked:

- RAID Group No.  
RAID Group number
  - RAID Group Name  
RAID Group name
  - RAID Level  
RAID level of the RAID Group
  - Status  
Status of the RAID Group
  - Controlling CM  
Controlling CM-CPU of the RAID Group
  - Capacity (MB)  
Capacity of the RAID Group
  - DVCF Mode  
DVCF mode (ON/OFF) of the RAID Group
  - Usage  
Volume type of the RAID Group
  - Resource Domain No.  
The number of the Resource Domain to which the target RAID Group is assigned (\*1)
  - Resource Domain Name  
The name of the Resource Domain to which the target RAID Group is assigned (\*1)
  - TPP No.  
The number of the Thin Provisioning Pool where the target RAID Group is registered
  - TPP Name  
The name of the Thin Provisioning Pool where the target RAID Group is registered
- \*1: Resource Domain is displayed when logged on the ETERNUS DX400/DX8000 series, in which the Resource Domains have been registered, using a Total Administrator account.

**2** To check the details of each item, click the link of the [RAID Group List (Initial)] screen.

Screens displayed when clicking each link are described below.

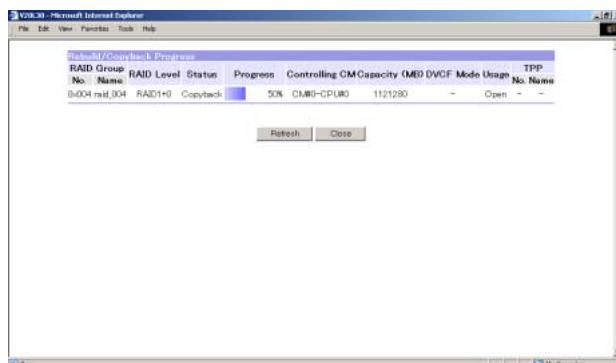
- RAID Group number (RAID Group No.)  
 Displays the installation diagram of disk drives configuring the RAID Group.



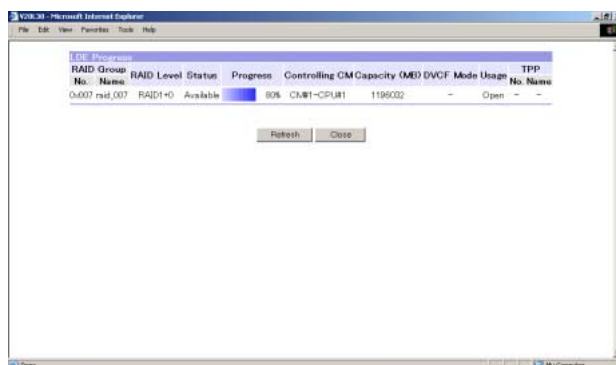
For RAID1+0 disks, disk mirror pairing details are displayed under a double-headed arrow. When the RAID group contains a failed disk, its still normal pair is shown paired with the hot spare disk replacement for the failed disk, while the failed disk is displayed to the right of the pair of normal disks.

"(S)" is displayed in the Capacity field of Nearline SATA disk drives.  
 "(SSD)" is displayed in the Capacity field of Solid State Drives.

- [Progress] link of [Status]  
 Rebuild/Copyback progress is displayed in another window.



- [LDE Progress] link of [Status]  
 LDE progress operating in the RAID Group is displayed in another window.



- [RDB] link of [Usage]  
 Detailed information and the formatting progress of the REC Disk Buffer where the target RAID Group is registered are displayed.



- Other links of [Usage]

A list of volumes and space usage status of the target RAID Group is displayed.

RAID Group# 0-000 - raid_000									
Logical Volume	Mainframe#	Open#	Name	Status	Volume Type	Encryption	Capacity (MB)		
-	0-0000	vol.0000	Available	SDV	-	-	1024		
-	0-0001	vol.0001	Available	SDV	-	-	1024		
-	0-0002	vol.0002	Available	Open	-	-	2000		
-	0-0003	vol.0003	Available	Format Progress	Open	-	2000		
-	0-0004	vol.0004	Available	SDV	-	-	1024		
-	0-0005	-	Available	SDV	-	-	12288		
-	0-0006	-	Available	SDV	-	-	12288		
-	0-0007	vol.0007	Available	Encrypt Progress	Open	-	2000		
-	0-0008	vol.0008	Available	Open	-	-	2000		
-	0-000A	vol.000A	Available	SDV	-	-	1024		
-	0-000B	-	Available	SDV	-	-	12288		
-	0-000C	-	Available	SDV	-	-	12288		
-	0-000D	vol.000D	Available	Open	-	-	2000		
-	0-000E	vol.000E	Available	Open	-	-	2000		
-	0-000F	vol.000F	Available	Open	-	-	2000		
Free	-	-	-	-	-	-	82256		

Refresh Status

- [Format Progress] link (in Status) allows "Format" progress to be checked.

Format Progress									
Logical Volume	Mainframe#	Open#	Name	Status	Progress	Volume Type	Encryption	Capacity (MB)	RAID Group TPP
-	0-0003	vol.0003	Available	50%	Open	-	-	2000	0-0000 raid_000 -

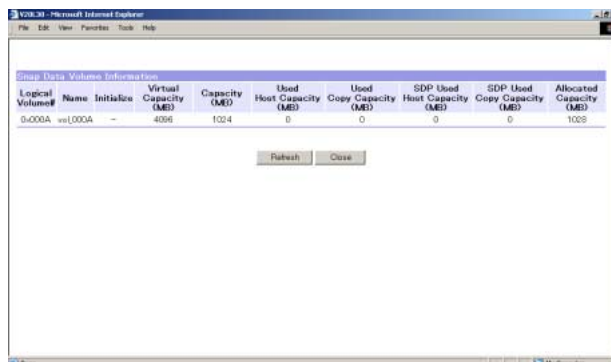
Refresh Close

- [Encrypt Progress] link (in Status) allows "Convert Encryption Volume" progress to be checked.

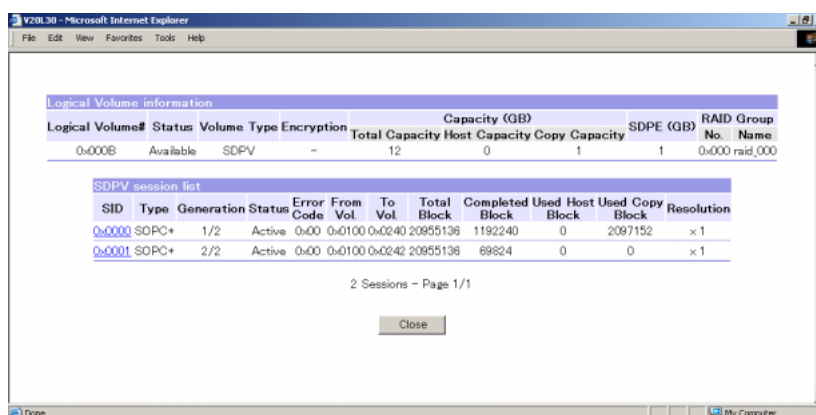
Convert Encryption Volume Progress									
Logical Volume	Mainframe#	Open#	Name	Status	Progress	Volume Type	Encryption	Capacity (MB)	RAID Group TPP
-	0-0007	vol.0007	Available	50%	Open	-	-	2000	0-0000 raid_000 -

Refresh Close

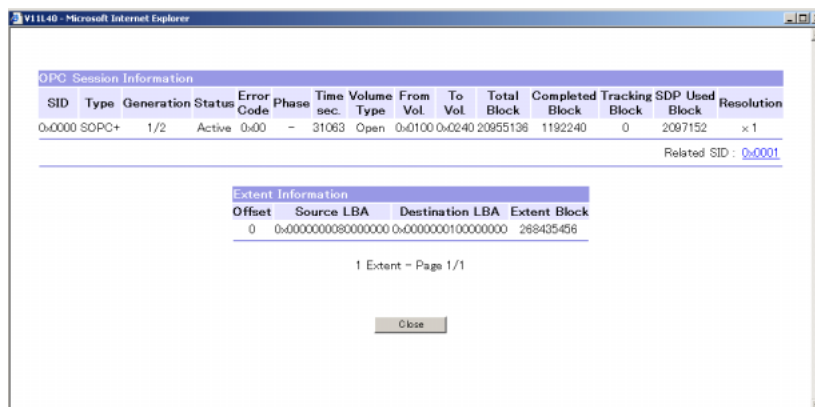
- [SDV] link (in Volume Type) allows Snap Data volume details to be checked.



- [SDPV] link (in Volume Type) allows Snap Data Pool volume details to be checked.



- Also, [SID] link (in SDPV session list) allows SDPV session details to be checked.



End of procedure

## 3.4 Thin Provisioning Pool List

This function displays a list and configuration information of Thin Provisioning Pools registered in the ETERNUS DX400/DX8000 series, and a list of Virtual Logical Volumes in the Thin Provisioning Pool.

This function facilitates the display of the status of each Thin Provisioning Pool and the RAID Groups configuring each Thin Provisioning Pool, aiding system administrators and maintenance engineers in their work.

### Caution



- When displaying the Thin Provisioning Pool list, register the Thin Provisioning Pool license. The [Thin Provisioning Pool List] menu will be available after registering the license.
- If "Caution" or "Warning" is displayed in the Status item of the Notice field in the Thin Provisioning Pool List, immediately expand disk drives.
- When no Thin Provisioning Pool is registered in the device, a message to that effect is displayed. Click the [OK] button to return to the [Menu] screen.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed Thin Provisioning Pools differ depending on the current user account.
  - When logged on using a Total Administrator account, all the Thin Provisioning Pools that are assigned to the Resource Domains are displayed.
  - When logged on using a Resource Domain Administrator account, only the Thin Provisioning Pools that are assigned to the relevant Resource Domain, and only the Thin Provisioning Pools that are assigned to the Shared Resource, are displayed.



### Note

- It is possible to check the Rebuilding/Copyback progress and detailed information for disk drives from the [Thin Provisioning Pool List (RAID Group List in the Pool)] screen for the Thin Provisioning Pool, as in the case of the [RAID Group List] function.
- Use the [Volume List] function to display all the Logical Volumes registered in the ETERNUS DX400/DX8000 series.
- Use the [RAID Group List] function to display all the RAID Groups registered in the ETERNUS DX400/DX8000 series.

The following explains procedures to display the Thin Provisioning Pool List.

## Procedure

- 1 Click [Thin Provisioning Pool List] in the [Status] menu.  
 → The [Thin Provisioning Pool List (Pool List)] screen appears.

Thin Provisioning Pool List										
TPP No.	Name	Disk Type	Reliability	Status	Capacity (MB)	Used Capacity (MB)	Status	Notice (%)		Encryption Usage
0-00	pool00	Online	High	Available	3360768	0	Normal	90	-	Yes -
0-01	pool01	Online	High	Available	3360768	134400	Normal	90	75	Yes <a href="#">TPV</a>
0-02	pool02	Online	High	Available	3360768	134400	Normal	90	75	Yes <a href="#">TPV</a>
0-03	pool03	Online	High	Available	3360768	134400	Normal	90	75	Yes <a href="#">TPV</a>
0-04	pool04	Online	High	Available	3360768	134400	Normal	90	75	Yes <a href="#">TPV</a>
0-05	pool05	Online	High	Available <a href="#">Format Progress</a>	3360768	134400	Normal	90	75	Yes <a href="#">TPV</a>
0-06	pool06	Nearline	Medium	Available	29578752	26880	Normal	90	80	- <a href="#">TPV</a>
0-07	pool07	Nearline	Medium	Available	29578752	26880	Normal	90	80	- <a href="#">TPV</a>
0-08	pool08	Nearline	Medium	Available	29578752	26880	Normal	90	80	- <a href="#">TPV</a>
0-09	pool09	Nearline	Medium	Available	29578752	26880	Normal	90	80	- <a href="#">TPV</a>

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Refer to "[A.4.1 Thin Provisioning Pool List \(Pool List\) Screen](#)" (page 676) for screen details.

The following items can be checked:

- TPP No.  
Thin Provisioning Pool number
- TPP Name  
Thin Provisioning Pool name
- Disk Type  
Disk type that configures the Thin Provisioning Pool
- Reliability  
Reliability of Thin Provisioning Pool
- Status  
Status of Thin Provisioning Pool
- Capacity (MB)  
Total capacity of Thin Provisioning Pool
- Used Capacity (MB)  
Physical capacity allocated to the volume from the Thin Provisioning Pool
- Notice (%)  
Usage of Thin Provisioning Pool and threshold for notification
- Encryption  
Encryption status of Thin Provisioning Pool
- Usage  
When volumes exist in the Thin Provisioning Pool, volume types are displayed.
- Resource Domain No.  
The number of the Resource Domain to which the target Thin Provisioning Pool is assigned. (\*1)
- Resource Domain Name  
The name of the Resource Domain to which the target Thin Provisioning Pool is assigned. (\*1)

\*1: Resource Domain is displayed when logged on the ETERNUS DX400/DX8000 series, in which the Resource Domains have been registered, using a Total Administrator account.

## 2 To check the details of each item, click the [Thin Provisioning Pool List (Pool List)] screen link.

Screens displayed when clicking each link are described below.

- TPP No.

A list of RAID Groups registered in the Thin Provisioning Pool is displayed.

Thin Provisioning Pool# 0x01 - pool 01							
RAID Group No.	Name	RAID Level	Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage
0x100	raid_100	RAID1+0	Available	CM#0-CPU#0	560128	-	-
0x101	raid_101	RAID1+0	Available	CM#0-CPU#1	560128	-	-
0x102	raid_102	RAID1+0	Rebuild Progress	CM#1-CPU#0	560128	-	-
0x103	raid_103	RAID1+0	Available	CM#1-CPU#1	560128	-	-
0x104	raid_104	RAID1+0	Available	CM#2-CPU#0	560128	-	-
0x105	raid_105	RAID1+0	Available	CM#2-CPU#1	560128	-	-

6 Groups - Page 1/1

Refresh Return

The following shows details about each link in the RAID Group List.

- RAID Group No.

Installation status of disks configuring the RAID Group is displayed.

Disk List making up RAID Group 0x100 : raid\_100

DE # 00 00  
 Disk # 04 05  
 Status   
 Capacity 300GB  
 300GB

DE # 01 01  
 Disk # 04 05  
 Status   
 Capacity 300GB  
 300GB

Base Rack: Move

is the DE in which the target disk exists

DE Mounting Position Display

Base Rack Expansion Rack#1 Expansion Rack#2 Expansion Rack#3 Expansion Rack#4 Expansion Rack#5

Current Rack: Base Rack

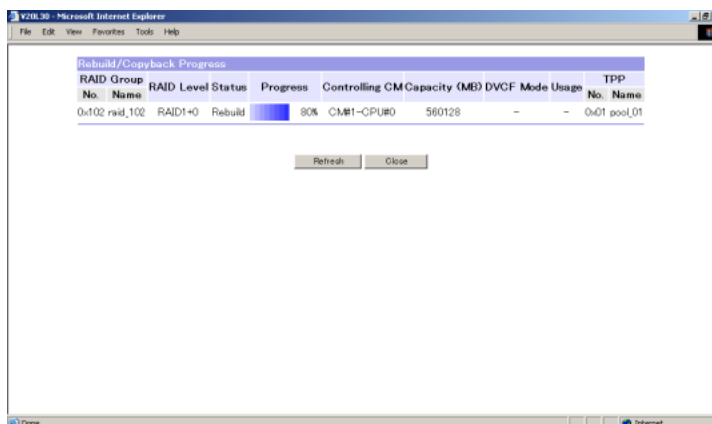
DE#04	DE#05	DE#06	DE#07								
Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity
0E		750 GB(S)	0E		750 GB(S)	0E		750 GB(S)	0E		750 GB(S)
0D		300 GB	0D		300 GB	0D		300 GB	0D		300 GB
0C		750 GB(S)	0C		750 GB(S)	0C		750 GB(S)	0C		750 GB(S)
0B		750 GB(S)	0B		750 GB(S)	0B		750 GB(S)	0B		750 GB(S)
0A		300 GB	0A		300 GB	0A		300 GB	0A		300 GB
09		300 GB	09		300 GB	09		300 GB	09		300 GB
08		300 GB	08		300 GB	08		300 GB	08		300 GB
07		300 GB	07		300 GB	07		300 GB	07		300 GB
06		300 GB	06		300 GB	06		300 GB	06		300 GB
05		300 GB	05		300 GB	05		300 GB	05		300 GB
04		300 GB	04		300 GB	04		300 GB	04		300 GB
03		300 GB	03		300 GB	03		300 GB	03		300 GB
02		300 GB	02		300 GB	02		300 GB	02		300 GB
01		300 GB	01		300 GB	01		300 GB	01		300 GB
00		300 GB	00		300 GB	00		300 GB	00		300 GB

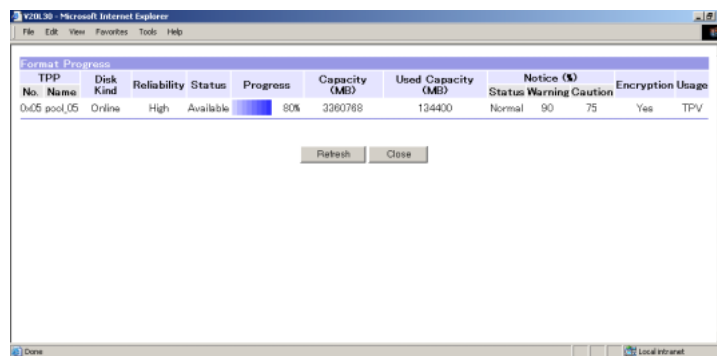
DE#00	DE#01	DE#02	DE#03								
Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity
0E		750 GB(S)	0E		750 GB(S)	0E		750 GB(S)	0E		750 GB(S)
0D		300 GB	0D		300 GB	0D		300 GB	0D		300 GB
0C		750 GB(S)	0C		750 GB(S)	0C		750 GB(S)	0C		750 GB(S)
0B		750 GB(S)	0B		750 GB(S)	0B		750 GB(S)	0B		750 GB(S)
0A		300 GB	0A		300 GB	0A		300 GB	0A		300 GB
09		300 GB	09		300 GB	09		300 GB	09		300 GB
08		300 GB	08		300 GB	08		300 GB	08		300 GB
07		300 GB	07		300 GB	07		300 GB	07		300 GB
06		300 GB	06		300 GB	06		300 GB	06		300 GB
05		300 GB	05		300 GB	05		300 GB	05		300 GB
04		300 GB	04		300 GB	04		300 GB	04		300 GB
03		73 GB	03		73 GB	03		73 GB	03		73 GB
02		73 GB	02		73 GB	02		73 GB	02		73 GB
01		73 GB	01		73 GB	01		73 GB	01		73 GB
00		73 GB	00		73 GB	00		73 GB	00		73 GB

Return

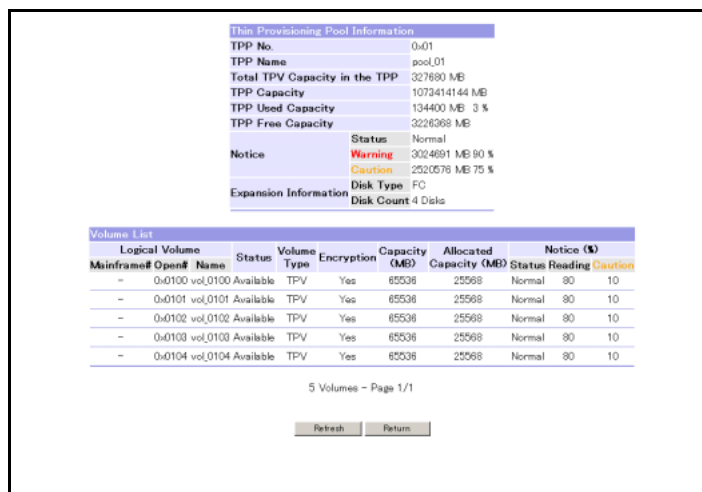
- [Progress] link of [Status]  
 Displays the Rebuild/Copyback progress in another window.



- [Format Progress] link of [Status]  
 Displays the formatting progress of the Thin Provisioning Pool in another window.



- [Usage] link  
 Displays the list of Thin Provisioning Volumes registered in the Thin Provisioning Pool.



Refer to ["A.4.2 Thin Provisioning Pool List \(Volume List in the Pool\) Screen"](#) (page 678) for screen details.

End of procedure

## 3.5 Volume List

This screen displays the volumes created in the ETERNUS DX400/DX8000 series.

### Caution



- When no volume is created in the device, a message to that effect is displayed. Click the [OK] button to return to the [Menu] screen.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed volumes differ depending on the current user account.
  - When logged on using a Total Administrator account, all the volumes registered in the ETERNUS DX400/DX8000 series are displayed.
  - When logged on using a Resource Domain Administrator account, only the volumes that are assigned to the relevant Resource Domain, and only the volumes that are assigned to the Shared Resource, are displayed.

The following explains procedures to check the status of the volumes created in the device.

### Procedure

- 1 Click [Volume List] in the [Status] menu.  
→ The [Volume List (Initial)] screen appears.

Volume List									
Logical Volume		Status	Volume Type	Encryption	Capacity (MB)	RAID Group		TPP	
Mainframe#	Open# Name					No.	Name	No.	Name
-	0x0000 vol_0000	Available	SDV	-	1024	0x000	raid_000	-	-
0x0000	-	Available	F6427G	-	-	0x010	raid_010	-	-
-	0x0001 vol_0001	Available	Open	-	1024	0x000	raid_000	-	-
-	0x0002 vol_0002	Available	Open	-	2000	0x000	raid_000	-	-
-	0x0003 vol_0003	Available <a href="#">Format Progress</a>	Open	-	2000	0x000	raid_000	-	-
-	0x0006 -	Available	SDPV	-	12288	0x000	raid_000	-	-
-	0x0007 vol_0007	Available <a href="#">Encrypt Progress</a>	Open	-	2000	0x000	raid_000	-	-
-	0x0008 vol_0008	Available	TPV	-	1024	-	-	0x01	pool_01
-	0x000A vol_000A	Available	SDV	-	1024	0x000	raid_000	-	-
-	0x000B -	Available	SDPV	-	12288	0x000	raid_000	-	-

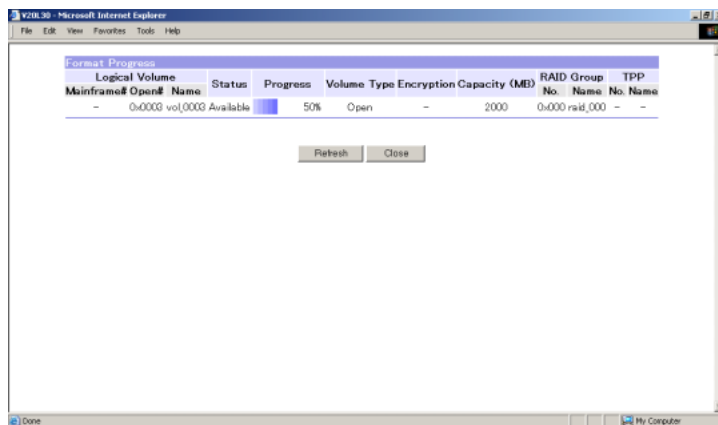
1000 Volumes - Page 1/100

Jump to Page

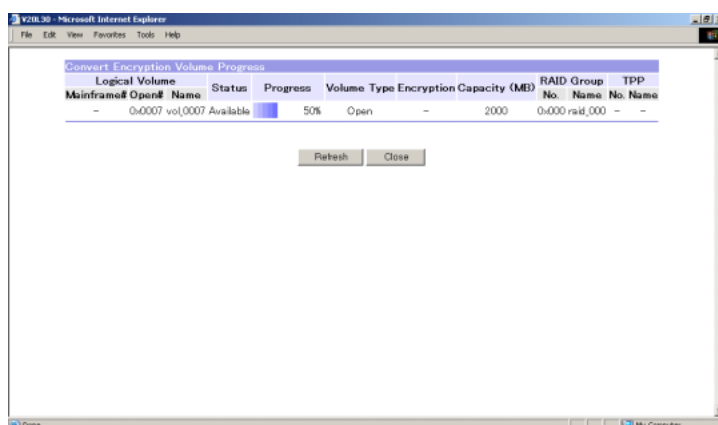
Refer to ["A.5.1 Volume List \(Initial\) Screen" \(page 682\)](#) for screen details.

## 2 Check the contents of the list.

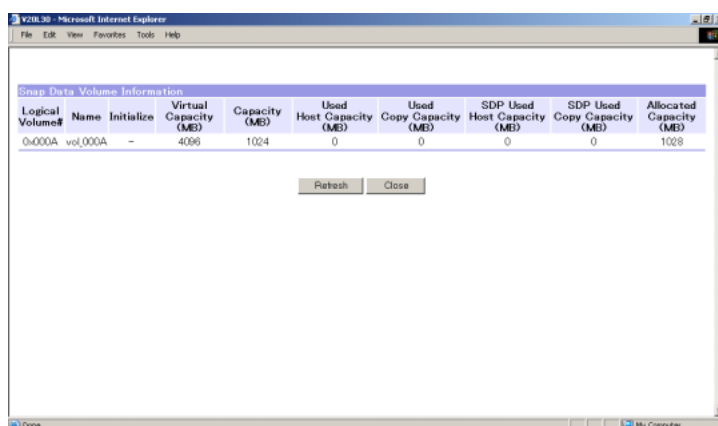
If a volume is being formatted, a [Format Progress] link appears in the Status column. Click this link to check the progress of the format.



If a volume is being encrypted, an [Encrypt Progress] link appears in the Status column. Click this link to check the progress of the encryption.



For Snap Data volumes, an [SDV] link appears in the Volume Type column. Click this link to view the Snap Data volume details.





## 3.6 Advanced Copy Status

This displays the operating status of Advanced Copy functions such as Equivalent Copy (EC), One Point Copy (OPC), and Remote Equivalent Copy (REC).

### Caution

- To display the Advanced Copy status, register the Advanced Copy License. The "Advanced Copy Status" is not available until the license has been registered.
- When no remote device for Remote Advanced Copy is registered, a message to that effect is displayed.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed sessions differ depending on the current user account.
  - When logged on using a Total Administrator account, all the active sessions in the ETERNUS DX400/DX8000 series are displayed.
  - When logged on using a Resource Domain Administrator account, active sessions that use a copy source or copy destination volume in one of the following conditions are displayed:
    - Volumes registered in the relevant Resource Domain
    - Volumes in the Shared Resource
    - Volumes that cannot be assigned to Resource Domains (Mainframe Volumes)

The following explains the procedures to display and check the operating status of Advanced Copy.

### Procedure

- 1 Click [Advanced Copy Status] in the [Status] menu.  
 → The [Advanced Copy Status (Initial)] screen appears.

Session Status			
Type	Active	Sessions	Status
EC	300		Normal
OPC	300		Normal
REC	400		Normal

Advanced Copy Path Status : Normal

Remote List		
Remote Box ID		Status
00E4000M#####E420S10A####N00000004300##		Normal
00E4000M#####E450R10A####N00000004500##		Normal
00E8000M#####E870S20A####N00000006700##		Normal
00E8000M#####E890S20A####N00000008900##		Normal
00E8000M#####E8B0S20A####N00000008110##		Normal
00E8000M#####E8M0S20A####N00000008210##		Normal

REC Buffer Information				
Group	Remote Box ID	Usage	Status	REC Disk Buffer Status Use Rate (%)
0	00E4000M#####E450R10A####N00000004500##	Send	Active	Normal 50
1	00E4000M#####E450R10A####N00000004500##	Receive	Active	- -
4	00E8000M#####E890S20A####N00000008900##	Send	Active	Normal 25
6	00E8000M#####E890S20A####N00000008900##	Receive	Active	- -

Refresh

Menu

## 2 Check the status.

### ■ Checking the status of EC session

- (1) Click the [Number of Active Sessions] link of EC from [Session Status].  
 → The [Advanced Copy Status (EC Session List)] screen appears in another window.  
 Refer to "[A.6.1 Advanced Copy Status \(EC Session List\) Screen](#)" (page 688) for screen details.
- (2) To check detailed information, click the [SID (Session ID)] link for the session that you want to check.

SID	Type	Generation	Status	Error Code	Phase	Time sec.	Volume Type	From Vol.	To Vol.	Total Block	Completed Block	Tracking Block	SDP Used Block	Resolution
0x0001	EC	-	Active	0x00	Copying	0	Mainframe	0x0000	0x03E8	1048576	0	-	-	-
0x0002	EC	-	Active	0x00	Copying	0	Open	0x0001	0x03E9	1048576	0	-	-	x 8
0x0003	EC	-	Active	0x00	Copying	0	Mainframe	0x0002	0x03EA	1048576	0	-	-	-
0x0004	EC	-	Active	0x00	Copying	0	Mainframe	0x0003	0x03EB	1048576	0	-	-	-
0x0005	EC	-	Active	0x00	Copying	0	Open	0x0004	0x03EC	1048576	0	-	-	x 8
0x0006	EC	-	Active	0x00	Copying	0	Open	0x0005	0x03ED	1048576	0	-	-	x 8
0x0007	EC	-	Active	0x00	Copying	0	Mainframe	0x0006	0x03EE	1048576	0	-	-	-
0x0008	EC	-	Active	0x00	Copying	0	Open	0x0007	0x03EF	1048576	0	-	-	x 8
0x0009	EC	-	Active	0x00	Copying	0	Open	0x0008	0x03F0	1048576	0	-	-	x 8
0x0010	EC	-	Active	0x00	Copying	0	Mainframe	0x0009	0x03F1	1048576	0	-	-	-

300 Sessions - Page 1/30  
 Jump to Page Next  
 Close

- The [Advanced Copy Status (EC Session Details)] screen appears.  
 Refer to "[A.6.3 Advanced Copy Status \(EC Session Details/OPC Session Details\) Screen](#)" (page 693) for screen details.
- (3) After checking the status, click the [Close] button and close the window.

SID	Type	Generation	Status	Error Code	Phase	Time sec.	Volume Type	From Vol.	To Vol.	Total Block	Completed Block	Tracking Block	SDP Used Block	Resolution
0x0001	EC	-	Active	0x00	Copying	0	Open	0x0001	0x03E9	1048576	0	-	-	x 8

Extent Information

Offset	Source LBA	Destination LBA	Extent Block
0	0x0000000000000000	0x0000000100000000	268435456

1 Extent - Page 1/1  
 Close

■ Checking the status of OPC session

- (1) Click the [Number of Active Sessions] link of OPC from [Session Status].  
 → The [Advanced Copy Status (OPC Session List)] screen appears in another window.  
 Refer to "[A.6.2 Advanced Copy Status \(OPC Session List\) Screen](#)" (page 690) for screen details.
- (2) To check detailed information, click the [SID (Session ID)] link for the session that you want to check.

SID	Type	Generation	Status	Error Code	Phase	Time sec.	Volume Type	From Vol.	To Vol.	Total Block	Completed Block	Tracking Block	SDP Used Block	Resolution
<a href="#">0x012C</a>	OPC	-	Active	0x00	-	0	Mainframe	0x0131	0x0519	1048576	0	0	-	-
<a href="#">0x012D</a>	OPC	-	Active	0x00	-	0	Open	0x0132	0x051A	1048576	0	0	-	×8
<a href="#">0x012E</a>	OPC+	1/8	Active	0x00	-	0	Open	0x0133	0x051B	1048576	0	0	2087152	×8
<a href="#">0x012F</a>	OPC+	2/8	Active	0x00	-	0	Open	0x0133	0x051C	1048576	0	0	0	×8
<a href="#">0x0130</a>	OPC	-	Active	0x00	Copying	0	Open	0x0135	0x051D	1048576	0	0	-	×8
<a href="#">0x0131</a>	OPC	-	Active	0x00	Copying	0	Mainframe	0x0136	0x051E	1048576	0	0	-	-
<a href="#">0x0132</a>	OPC	-	Active	0x00	Copying	0	Open	0x0137	0x051F	1048576	0	0	-	×8
<a href="#">0x0133</a>	OPC	-	Active	0x00	Copying	0	Mainframe	0x0138	0x0520	1048576	0	0	-	-
<a href="#">0x0134</a>	OPC	-	Active	0x00	-	0	Open	0x0139	0x0521	1048576	0	0	0	×8
<a href="#">0x0135</a>	OPC	-	Active	0x00	-	0	Open	0x013A	0x0522	1048576	0	0	0	×8

300 Sessions - Page 1/30

- The [Advanced Copy Status (OPC Session Details)] screen appears.  
 Refer to "[A.6.3 Advanced Copy Status \(EC Session Details/OPC Session Details\) Screen](#)" (page 693) for screen details.
- (3) After checking the status, click the [Close] button and close the window.

SID	Type	Generation	Status	Error Code	Phase	Time sec.	Volume Type	From Vol.	To Vol.	Total Block	Completed Block	Tracking Block	SDP Used Block	Resolution
0x012E	OPC+	1/2	Active	0x00	-	0	Open	0x0133	0x051B	1048576	0	0	2087152	×8

Related SID : [0x012F](#), [0x0138](#), [0x0139](#), [0x013A](#), [0x013B](#), [0x014A](#), [0x0150](#)

Offset	Source LBA	Destination LBA	Extent Block
0	0x0000000000000000	0x0000000100000000	268435456

1 Extent - Page 1/1

■ Checking the status of REC session

- (1) Click the [Number of Active Sessions] link of REC from [Session Status].  
 → The [Advanced Copy Status (REC Session List)] screen appears in another window.  
 Refer to "[A.6.4 Advanced Copy Status \(REC Session List\) Screen](#)" (page 695) for screen details.
- (2) To check detailed information, click the [SID (Session ID)] link for the session that you want to check.

SID	Remote SID	Status	Error Code	Phase	Time sec.	Volume Type	Role	From Vol.	To Vol.	Total Block	Completed Block	Resolution
0x0259	0x012C	Active	0x00	Copying	0	Mainframe	P	0x0262	0x064A	1048576	0	-
0x0259	0x012D	Active	0x00	Copying	0	Open	P	0x0263	0x064B	1048576	0	x 8
0x025A	0x012E	Active	0x00	Copying	0	Mainframe	S	0x0264	0x064C	1048576	0	-
0x025B	0x012F	Active	0x00	Copying	0	Open	P	0x0265	0x064D	1048576	0	x 8
0x025C	0x0130	Active	0x00	Copying	0	Mainframe	P	0x0266	0x064E	1048576	0	-
0x025D	0x0131	Active	0x00	Copying	0	Open	S	0x0267	0x064F	1048576	0	x 8
0x025E	0x0132	Active	0x00	Copying	0	Mainframe	P	0x0268	0x0650	1048576	0	-
0x025F	0x0133	Active	0x00	Copying	0	Open	S	0x0269	0x0651	1048576	0	x 8
0x0260	0x0134	Active	0x00	Copying	0	Mainframe	S	0x026A	0x0652	1048576	0	-
0x0261	0x0135	Active	0x00	Copying	0	Open	P	0x026B	0x0653	1048576	0	x 8

400 Sessions - Page 1/40  
 Jump to Page Next  
 Close

- The [Advanced Copy Status (REC Session Details)] screen appears.  
 Refer to "[A.6.5 Advanced Copy Status \(REC Session Details\) Screen](#)" (page 697) for screen details.
- (3) After checking the status, click the [Close] button and close the window.

SID	Remote SID	Status	Error Code	Phase	Time sec.	Volume Type	Role	From Vol.	To Vol.	Total Block	Completed Block	Resolution
0x0259	0x012D	Active	0x00	Copying	0	Open	P	0x0263	0x064B	1048576	0	x 8

**Detail Information**

Operation Mode	Recovery Mode	Split Mode	Remote Box ID
Async Through No Consistency	Automatic	Automatic	00E8000M0####E890S20A###00000000001##

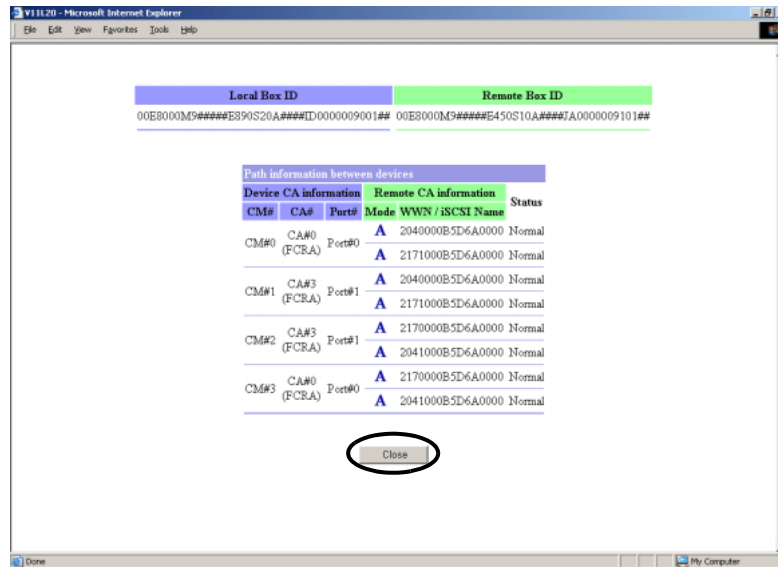
**Extent Information**

Offset	Source LBA	Destination LBA	Extent Block
0	0x00000600040DC91	0x00000600000CFAB0	6597070553157

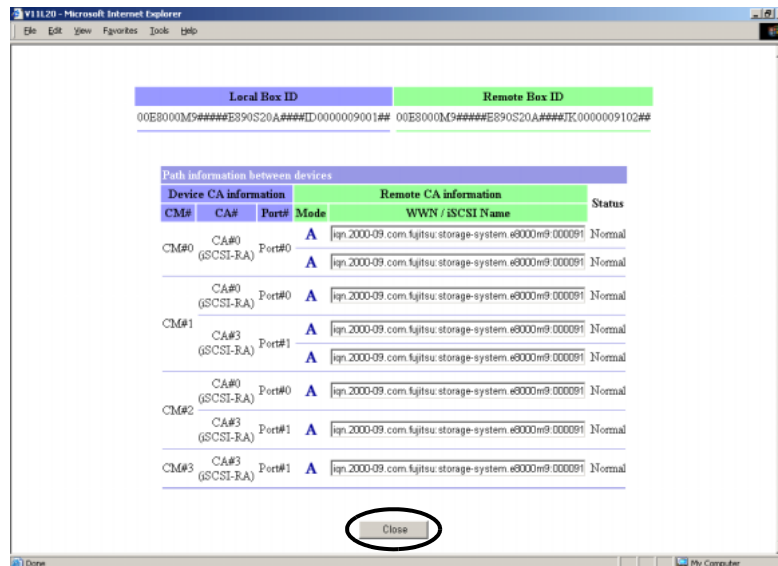
1 Extent - Page 1/1  
 Close

■ Checking the status of Advanced Copy Path

- (1) Click the [Remote Box ID] link from [Connection Destination List] for the path that you want to check.  
→ The [Advanced Copy Status (Advanced Copy Path Status)] screen appears.  
Refer to "[A.6.6 Advanced Copy Status \(Advanced Copy Path Status\) Screen](#)" (page 699) for screen details.
- (2) After checking the status, click the [Close] button and close the window.
  - When the path is FC-RA only



- When the path is iSCSI-RA only



- 3 Click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

## Chapter 4 Getting Started Menu

---

This chapter describes the functions of the "Getting Started" menu.

The "Getting Started" menu is a collection of basic configuration and host access related setup items and aims to help with the initial configuration of the ETERNUS DX400/DX8000 series.

### 4.1 Hot Spare Disk Settings

---

This screen is used to create or delete hot spare disks.

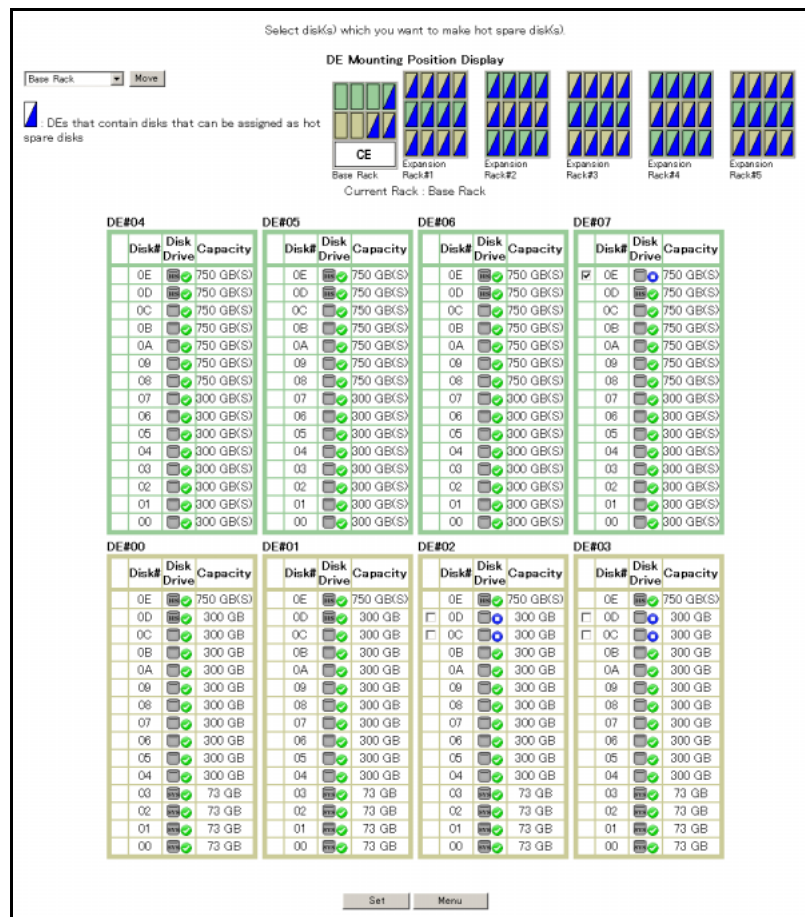
#### 4.1.1 Create Hot Spare

---

Click on [Create Hot Spare] to create hot spare disks.

## Procedure

- 1 Click [Create Hot Spare] under the Hot Spare Disk Settings in the [Getting Started] menu.  
 → The [Create Hot Spare] screen appears.



- 2 Create hot spare disks. Refer to ["5.2.16 Create Hot Spare" \(page 241\)](#) for details.

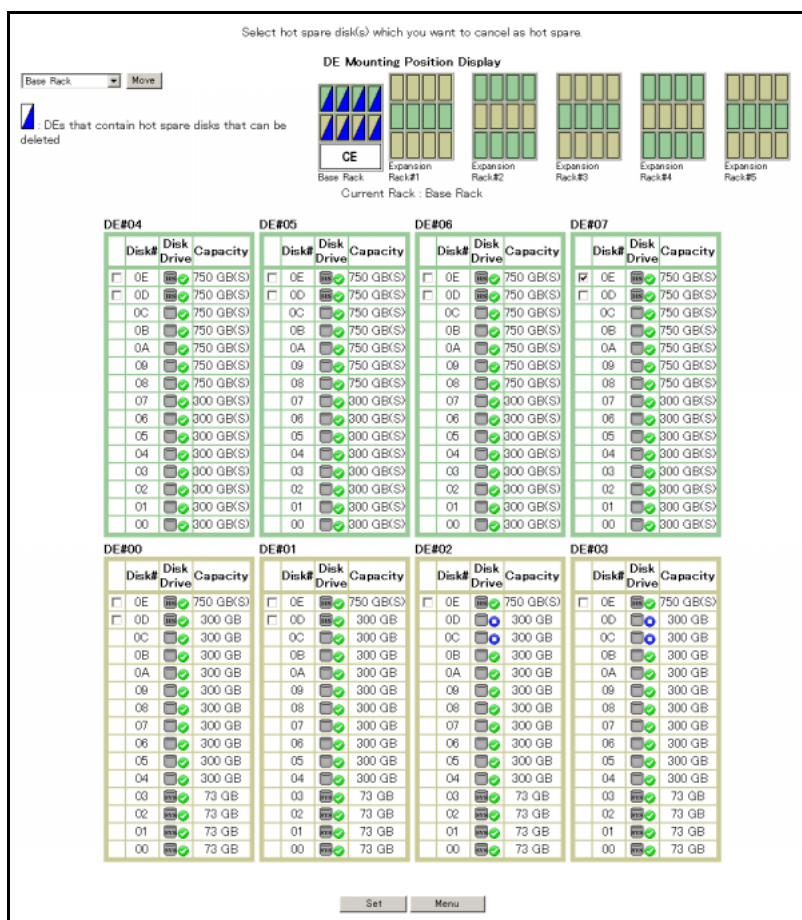
End of procedure

## 4.1.2 Delete Hot Spare

Click on [Delete Hot Spare] to delete hot spare disks.

### Procedure

- 1 Click [Delete Hot Spare] under the Hot Spare Settings in the [Getting Started] menu.  
 → The [Delete Hot Spare] screen appears.



- 2 Delete hot spare disks. Refer to ["5.2.17 Delete Hot Spare" \(page 243\)](#) for details.

End of procedure

## 4.2 RAID Group Settings

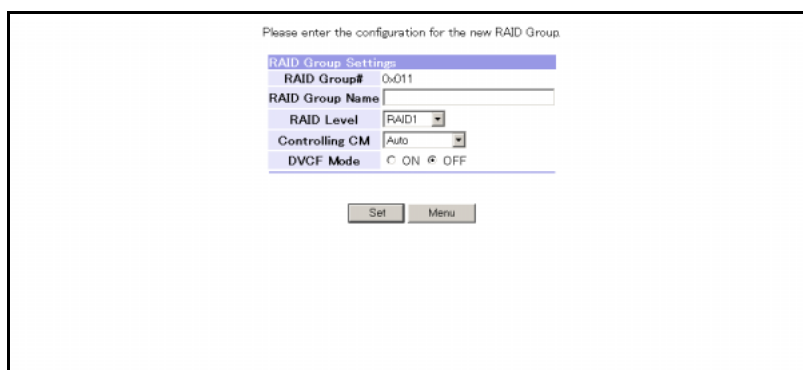
This screen is used to create or delete RAID groups.

### 4.2.1 Create RAID Group

Click on [Create RAID Group] to create RAID groups.

#### Procedure

- 1 Click [Create RAID Group] under the RAID Group Settings in the [Getting Started] menu.  
→ The [Create RAID Group] screen appears.



- 2 Create RAID groups. Refer to ["5.2.1 Create RAID Group" \(page 144\)](#) for details.

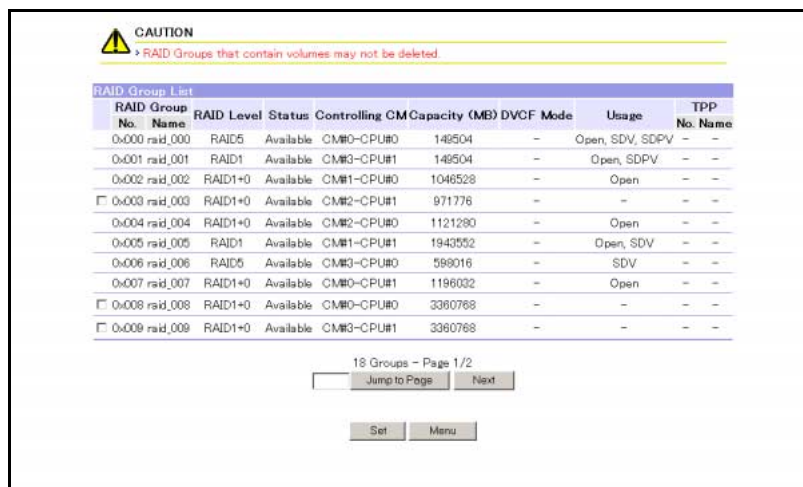
End of procedure

## 4.2.2 Delete RAID Group

Click on [Delete RAID Group] to delete RAID groups.

### Procedure

- 1 Click [Delete RAID Group] under the RAID Group Settings in the [Getting Started] menu.  
 → The [Delete RAID Group] screen appears.



- 2 Delete the undesired RAID groups. Refer to ["5.2.5 Delete RAID Group" \(page 165\)](#) for details.

End of procedure

## 4.3 Thin Provisioning Pool Settings

This screen is used to create or delete Thin Provisioning Pools.

### 4.3.1 Create/Extend Thin Provisioning Pool

Click on [Create/Extend Thin Provisioning Pool] to create/expand Thin Provisioning Pools.

#### Procedure

- 1 Click [Create/Extend Thin Provisioning Pool] under the Thin Provisioning Pool Settings in the [Getting Started] menu.  
 → The [Create/Extend Thin Provisioning Pool] screen appears.

Click the [Add] button to create a new Thin Provisioning Pool  
Click the Thin Provisioning Pool No. link to extend Thin Provisioning Pool

Thin Provisioning Pool List										
TPP No.	Name	Disk Type	Reliability	Status	Capacity (MB)	Used Capacity (MB)	Status	Notice (%)	Warning Caution	Encryption Usage
<a href="#">0x00</a>	pool00	Online	High	Available	3360768	0	Normal	90	-	Yes -
<a href="#">0x01</a>	pool01	Online	High	Available	3360768	134400	Normal	90	75	Yes TPV
<a href="#">0x02</a>	pool02	Online	High	Available	3360768	134400	Normal	90	75	Yes TPV
<a href="#">0x03</a>	pool03	Online	High	Available	3360768	134400	Normal	90	75	Yes TPV
<a href="#">0x04</a>	pool04	Online	High	Available	3360768	134400	Normal	90	75	Yes TPV
<a href="#">0x05</a>	pool05	Online	High	Available	3360768	134400	Normal	90	75	Yes TPV
<a href="#">0x06</a>	pool06	Nearline	Medium	Available	29578752	26880	Normal	90	80	- TPV
<a href="#">0x07</a>	pool07	Nearline	Medium	Available	29578752	26880	Normal	90	80	- TPV
<a href="#">0x08</a>	pool08	Nearline	Medium	Available	29578752	26880	Normal	90	80	- TPV
<a href="#">0x09</a>	pool09	Nearline	Medium	Available	29578752	26880	Normal	90	80	- TPV

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- 2 Create/expand Thin Provisioning Pools. Refer to ["5.3.1 Create/Extend Thin Provisioning Pool" \(page 247\)](#) for details.

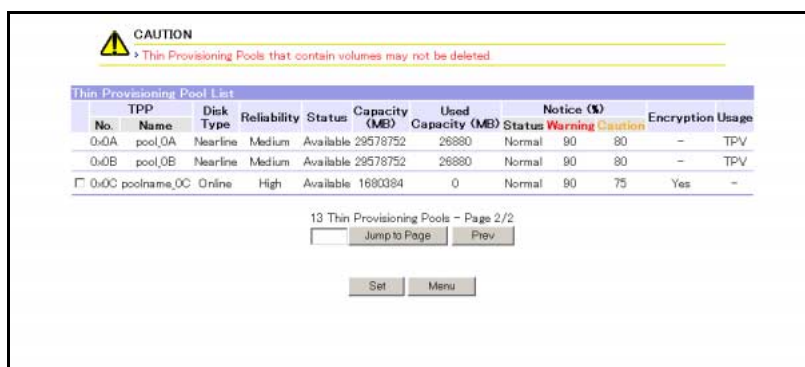
End of procedure

## 4.3.2 Delete Thin Provisioning Pool

Click on [Delete Thin Provisioning Pool] to delete Thin Provisioning Pools.

### Procedure

- 1 Click [Delete Thin Provisioning Pool] under the Thin Provisioning Pool Settings in the [Getting Started] menu.  
 → The [Delete Thin Provisioning Pool] screen appears.



- 2 Delete the Thin Provisioning Pools. Refer to ["5.3.6 Delete Thin Provisioning Pool" \(page 275\)](#) for details.

End of procedure

## 4.4 Logical Volume Settings

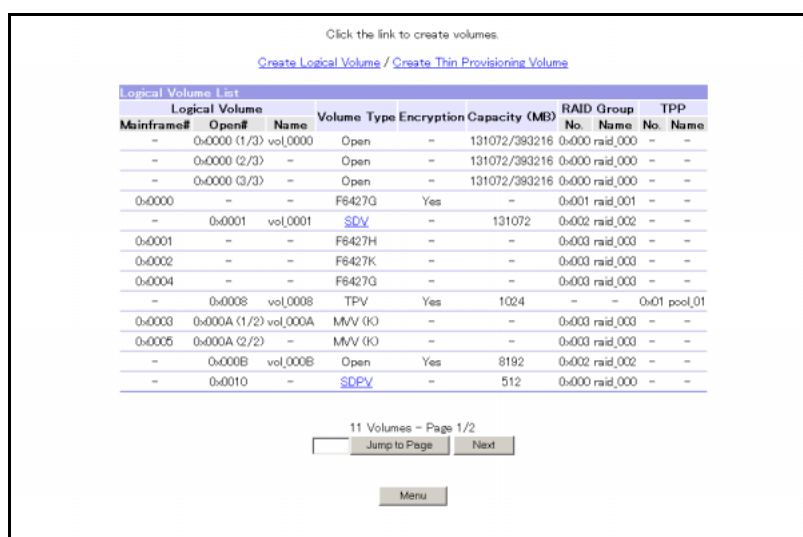
This screen is used to create or delete Logical Volumes.

### 4.4.1 Create Logical Volume

Click on [Create Logical Volume] to create Logical Volumes.

#### Procedure

- 1 Click [Create Logical Volume] under the Logical Volume Settings in the [Getting Started] menu.  
 → The [Create Logical Volume] screen appears.



- 2 Create Logical Volumes. Refer to ["5.2.6 Create Logical Volume" \(page 167\)](#) for details.


End of procedure

## 4.4.2 Delete Logical Volume

Click on [Delete Logical Volume] to delete Logical Volumes.

### Procedure

- 1 Click [Delete Logical Volume] under the Logical Volume Settings in the [Getting Started] menu.  
 → The [Delete Logical Volume] screen appears.

 **CAUTION**  
 > When a mapped volume is deleted, the mapping is also deleted.

Please select the logical volumes that are to be deleted.

Logical Volume List											
Logical Volume			Status	Volume Type	Encryption	Capacity (MB)	RAID Group		TPP		
Mainframe#	Open#	Name					No.	Name			
<input type="checkbox"/>	-	0-0000	vol_0000	Available	Open	-	131072	0-000	raid_000	-	-
<input type="checkbox"/>	0-0000	-	-	Available	F6427G	Yes	-	0-001	raid_001	-	-
<input type="checkbox"/>	-	0-0001	vol_0001	Available	SDV	-	131072	0-002	raid_002	-	-
<input type="checkbox"/>	0-0001	-	-	Available	F6427H	-	-	0-003	raid_003	-	-
<input type="checkbox"/>	0-0002	-	-	Available	F6427K	-	-	0-003	raid_003	-	-
<input type="checkbox"/>	0-0004	-	-	Available	F6427G	-	-	0-003	raid_003	-	-
<input type="checkbox"/>	-	0-0008	vol_0008	Available	TPV	-	1024	-	-	0-01	pool_01
<input type="checkbox"/>	0-0003	0-000A (1/2)	vol_000A	Available	MVV (K)	-	-	0-003	raid_003	-	-
<input type="checkbox"/>	0-0005	0-000A (2/2)	-	Available	MVV (K)	-	-	0-003	raid_003	-	-
<input type="checkbox"/>	-	0-000B (1/3)	vol_000B	Available	Open	Yes	8192/24576	0-002	raid_002	-	-
<input type="checkbox"/>	-	0-000B (2/3)	-	Available	Open	-	8192/24576	0-002	raid_002	-	-
<input type="checkbox"/>	-	0-000B (3/3)	-	Available	Open	-	8192/24576	0-002	raid_002	-	-
<input type="checkbox"/>	-	0-0010	-	Available	SDPV	-	512	0-000	raid_000	-	-

Individual Volumes / Range of Volumes Selection

☒ Individual: Select logical volumes for deletion from the above list.

☐ Range (Mainframe): from Logical Volume #0x  to Logical Volume #0x

☐ Range (Open): from Logical Volume #0x  to Logical Volume #0x

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- 2 Delete the undesired Logical Volumes. Refer to ["5.2.15 Delete Logical Volume" \(page 236\)](#) for details.

End of procedure

## 4.5 Open-CA Settings

This screen is used to access volumes from an open system server.

### 4.5.1 Set CA Parameters

Click on [Set CA Parameters] to set a CA that can access an open system server.

#### Procedure

- 1 Click [Set CA Parameters] under the Open-CA Settings in the [Getting Started] menu.  
 → The [Set CA Parameters] screen appears.

Select a CA port.

CM#0				CM#1				CM#2				CM#3			
CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3
FC	FC	ISCSI	ISCSI-RA	FC	FC	ISCSI	ISCSI-RA	FC	FC8G	FCLINK	OCLINK	FC	FC8G	FCLINK	OCLINK
<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0
<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1
<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2
<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3

Set Copy Menu

- 2 Set CA Parameters. Refer to ["5.4.1 Set CA Parameters" \(page 300\)](#) for details.

End of procedure

## 4.5.2 Set Host World Wide Name(s)

Click on [Set Host World Wide Name(s)] to set a Host World Wide Name.

### Procedure

- 1 Click [Set Host World Wide Name(s)] under the Open-CA Settings in the [Getting Started] menu.  
 → The [Set Host World Wide Name(s)] screen appears.

**CAUTION**  
 > If the [Collect] button does not fill the WWN pulldown, Manual Input will be required.

Host WWN List (Registered & Pending)			
No.	Name	World Wide Name	Host Response
<input type="checkbox"/> 000	host1_000	AAAAAAAAAAAAAB001	[Default]
<input type="checkbox"/> 001	host1_001	AAAAAAAAAAAAAB002	[Default]
<input type="checkbox"/> 002	host1_002	AAAAAAAAAAAAAB003	[Default]

3 Hosts - Page 1/1

**Add WWN**

Name:

CA:

☒ Select WWN:

☐ Manual Input WWN:

Host Response:

- 2 Set Host World Wide Name(s). Refer to ["5.4.2 Set Host World Wide Name\(s\)" \(page 327\)](#) for details.

End of procedure

### 4.5.3 Set iSCSI Host

Click on [Set iSCSI Host] to set an iSCSI Host.

#### Procedure

- 1 Click [Set iSCSI Host] under the Open-CA Settings in the [Getting Started] menu.  
 → The [Set iSCSI Host] screen appears.

[Retrieve iSCSI Host](#)

Host Table #	IP Address	Name				Host Response
		iSCSI Name	Alias Name	User Name	Password	
host2_0001						
host-name-1						
<input type="checkbox"/> 0001	10.17.0.0		alias_name_1			Default
	chap_usr_1					*****
host2_0002						
host-name-2						
<input type="checkbox"/> 0002	10.17.16.16		alias_name_2			Default
	chap_usr_2					*****

[Host Response List](#)

- 2 Set iSCSI Host. Refer to ["5.4.3 Set iSCSI Host" \(page 338\)](#) for details.

End of procedure

## 4.5.4 Set Affinity Group

---

Click on [Set Affinity Group] to set an Affinity Group.

### Procedure

- 1 Click [Set Affinity Group] under the Open-CA Settings in the [Getting Started] menu.  
→ The [Set Affinity Group] screen appears.



Affinity Group list	
No	Name

New Affinity Group#:

Additional Affinity Group#:

Affinity Group Name:

- 2 Set Affinity Group. Refer to ["5.4.4 Set Affinity Group" \(page 355\)](#) for details.

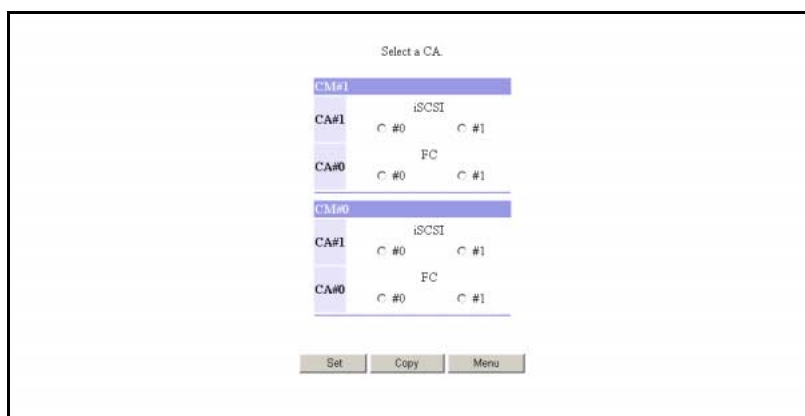
End of procedure

## 4.5.5 Allocate Host-Affinity Group

Click on [Allocate Host-Affinity Group] to allocate a Host-Affinity Group.

### Procedure

- 1 Click [Allocate Host -Affinity Group] under the Open-CA Settings in the [Getting Started] menu.  
→ The [Allocate Host-Affinity Group] screen appears.



- 2 Allocate Host-Affinity Group. Refer to ["5.4.5 Allocate Host-Affinity Group" \(page 375\)](#) for details.

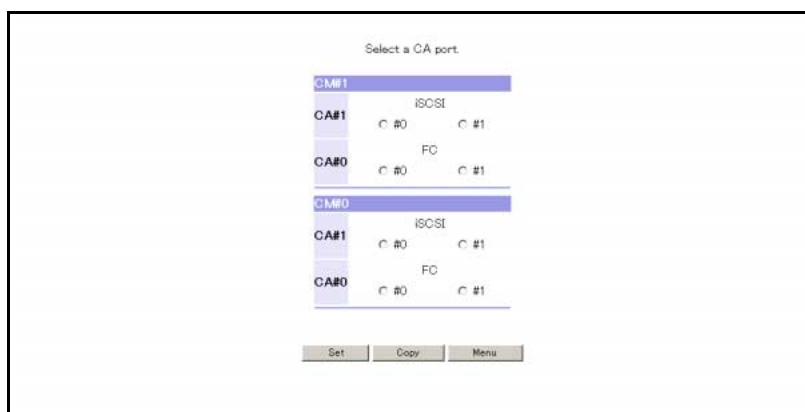
End of procedure

## 4.5.6 Set LUN Mapping

Click on [Set LUN Mapping] to set LUN Mapping.

### Procedure

- 1 Click [Set LUN Mapping] under the Open-CA Settings in the [Getting Started] menu.  
→ The [Set LUN Mapping] screen appears.



- 2 Set LUN Mapping. Refer to ["5.4.6 Set LUN Mapping" \(page 388\)](#) for details.

End of procedure

### 4.5.7 Set CA Reset Group

Click on [Set CA Reset Group] to set CA Reset Group.

#### Procedure

- 1 Click [Set CA Reset Group] under the Open-CA Settings in the [Getting Started] menu.  
→ The [Set CA Reset Group] screen appears.

Please select the CA port whose Reset Group is to be set.

CM#0				CM#1				CM#2				CM#3			
CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3
FC	FC	FC	iSCSI	FC	FC	FCLINK	FCLINK	FC	FC	iSCSI	OCLINK	FC	FC	FC	OCLINK
<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0
<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1
<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2
<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3

- 2 Set CA Reset Group. Refer to ["5.4.7 Set CA Reset Group" \(page 398\)](#) for details.

End of procedure

## 4.6 Mainframe-CA Settings

This screen is used to access volumes from the mainframe server.  
 "Mainframe-CA Settings" is displayed only when the GS License is registered.

### 4.6.1 Set CA Parameters

Click on [Set CA Parameters] to set a CA that can access the mainframe server.

#### Procedure

- 1 Click [Set CA Parameters] under the Mainframe-CA Settings in the [Getting Started] menu.  
 → The [Set CA Parameters] screen appears.

Select a CA port.

CM#0				CM#1				CM#2				CM#3			
CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3
FC	FC	ISCSI	ISCSI-RA	FC	FC	ISCSI	ISCSI-RA	FC	FC8G	FCLINK	OCLINK	FC	FC8G	FCLINK	OCLINK
<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0
<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1
<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2
<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3

Set Copy Menu

- 2 Set CA Parameters. Refer to ["5.4.1 Set CA Parameters" \(page 300\)](#) for details.

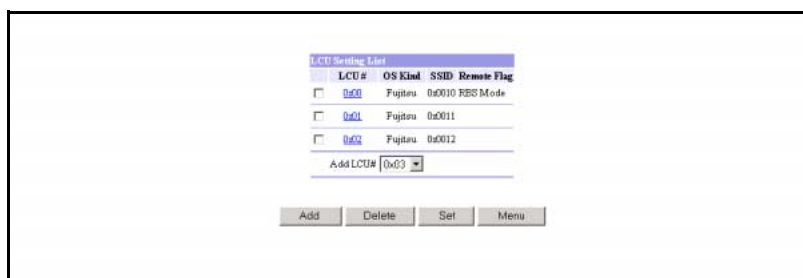
End of procedure

## 4.6.2 Set LCU (ETERNUS DX8000 series only)

Click on [Set LCU] to set a LCU.

### Procedure

- 1 Click [Set LCU] under the Mainframe-CA Settings in the [Getting Started] menu.  
→ The [Set LCU] screen appears.



- 2 Set LCU. Refer to ["5.4.9 Set LCU \(ETERNUS DX8000 series only\)" \(page 417\)](#) for details.

End of procedure

### 4.6.3 Set IOA Mapping (ETERNUS DX8000 series only)

---

Click on [Set IOA Mapping] to set IOA Mapping.

#### Procedure

- 1 Click [Set IOA Mapping] under the Mainframe-CA Settings in the [Getting Started] menu.  
→ The [Set IOA Mapping] screen appears.

Select a CA.

CM#1
OCLINK
CA#1 <input type="radio"/> #0 <input type="radio"/> #1
FCLINK
CA#0 <input type="radio"/> #0 <input type="radio"/> #1

CM#0
OCLINK
CA#1 <input type="radio"/> #0 <input type="radio"/> #1
FCLINK
CA#0 <input type="radio"/> #0 <input type="radio"/> #1

Set Copy Menu

- 2 Set IOA Mapping. Refer to ["5.4.10 Set IOA Mapping \(ETERNUS DX8000 series only\)" \(page 425\)](#) for details.

End of procedure

## Chapter 5 Configuration Menu

This chapter describes the functions of the Configuration menu.

### 5.1 Resource Domain Management

The [Set Resource Domain] function divides the ETERNUS DX400/DX8000 series into a maximum of eight areas, and assigns resources to each area. These divided areas are called "Resource Domains". The following Open resources can be assigned:

- RAID Group
- Thin Provisioning Pool
- Host WWN
- iSCSI Host
- Affinity Group
- Host Response
- Eco-mode Schedule

This function provides the Resource Domains related settings and assigns resources. The following can be set up on this screen.

- Set Resource Domain
- Assign Numerical Resource
- Assign Resources

#### 5.1.1 Set Resource Domain

This menu provides the following Resource Domains related functions:

- Create Resource Domains
- Rename Resource Domain
- Delete Resource Domains

#### Caution

- The [Set Resource Domain] menu is not displayed in the following conditions:
  - When the current user account does not support the [Set Resource Domain] function
  - When logged on using a Resource Domain Administrator account
- If deleting the Resource Domain in which resources are assigned, the assigned resources become Shared Resources. Shared Resources can be accessed from all the Resource Domains.



Note

- Up to eight Resource Domains can be created per ETERNUS DX400/DX8000 series.
- After creating Resource Domains, set the maximum number of assignable resources using the [Assign Numerical Resource] menu.
- After creating Resource Domains, assign each resource to Resource Domains using the [Assign Resources] menu.

This section explains [Set Resource Domain] procedures.  
The following settings are available.

- [Create Resource Domains](#)
- [Rename Resource Domain](#)
- [Delete Resource Domains](#)

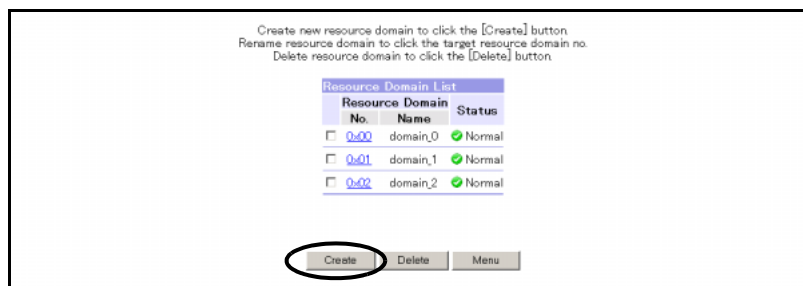
Procedures for each operation are described below.

### 5.1.1.1 Create Resource Domains

This section explains procedures for creating Resource Domains.

#### Procedure

- 1 Click [Set Resource Domain] under the Resource Domain Management in the [Configuration] menu.  
→ The [Set Resource Domain (Resource Domain List)] screen appears.
- 2 Click the [Create] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Set Resource Domain (Create Resource Domains)] screen appears.  
Refer to ["A.7.1 Set Resource Domain \(Create Resource Domains\) Screen" \(page 703\)](#) for screen details.

#### Caution



When the maximum number of Resource Domains has already been registered in the ETERNUS DX400/DX8000 series, the [Create] button is not displayed.

- 3 Select the number of Resource Domains to be created, enter the Resource Domain name (can be omitted), and click the [Set] button.

Input information of resource domain to create

Create Resource Domain Count

Create Resource Domain Information

Resource Domain	
No.	Name
0x00	domain_3

Set Return

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Set Resource Domain (Check Resource Domain Creation)] screen appears.

**Caution**

When clicking the [Set] button in the following conditions, an error screen appears.

- When entering characters other than ASCII code (0x20 – 0x7E), or entering "<", ">", or "&", as the Resource Domain name
- When entering an existing Resource Domain name (\*1)
- When entering the same name for multiple Resource Domains (\*1)

\*1: Blanks (no name is specified) can be overlapped.

**Note**

When selecting the number of Resource Domains to be created from the "Create Resource Domain Count" list box, the same number of text boxes for entering Resource Domain names are displayed in the "Create Resource Domain Information" field.

The Resource Domain number is assigned starting from the smallest unused Resource Domain number in ascending order.

- 4 Click the [OK] button.

Please confirm that you wish to perform this operation.

OK Cancel

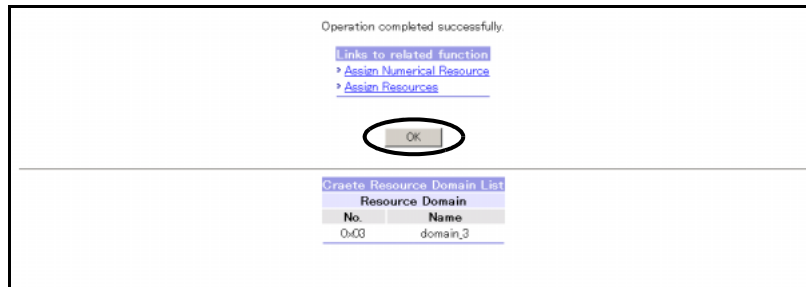
Create Resource Domain List

Resource Domain	
No.	Name
0x00	domain_3

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Set Resource Domain (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Set Resource Domain (Resource Domain Creation Result)] screen appears.

**5** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Menu] screen.



**Note**

- When setting the maximum number of resources for each Resource Domain, click the [Assign Numerical Resource] link.
- When changing the management target resource type from the shared resource to a specific Resource Domain, click the [Assign Resources] link.

**End of procedure**

### 5.1.1.2 Rename Resource Domain

This section explains procedures for changing a Resource Domain name.

#### Procedure

- 1** Click [Set Resource Domain] under the Resource Domain Management in the [Configuration] menu.  
 → The [Set Resource Domain (Resource Domain List)] screen appears.
- 2** Click the [Resource Domain No.] link for renaming target Resource Domain.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Set Resource Domain (Rename Resource Domain)] screen appears.

- 3** Input the new Resource Domain name into the Resource Domain name text box, and click the [Set] button.

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Set Resource Domain (Check Renamed Resource Domain)] screen appears.

**Caution**

- Multiple Resource Domains cannot be renamed at the same time. Change the name of the Resource Domain one by one.
- When clicking the [Set] button in the following conditions, an error screen appears.
  - When entering characters other than ASCII code (0x20 – 0x7E), or entering "<", ">", or "&", as the Resource Domain name
  - When entering an existing Resource Domain name (\*1)

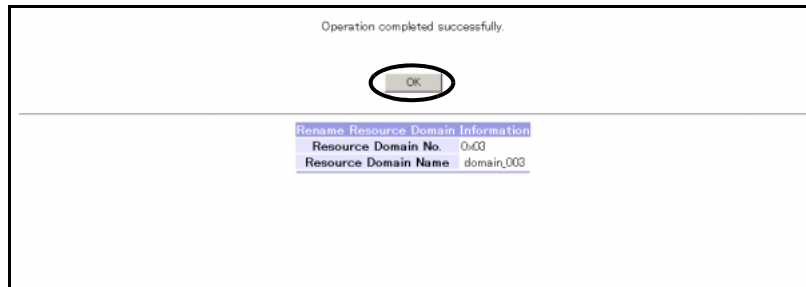
\*1: Blanks (no name is specified) can be overlapped.

- 4** Click the [OK] button.

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Set Resource Domain (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Set Resource Domain (Rename Resource Domain Name Result)] screen appears.

**5** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Menu] screen.

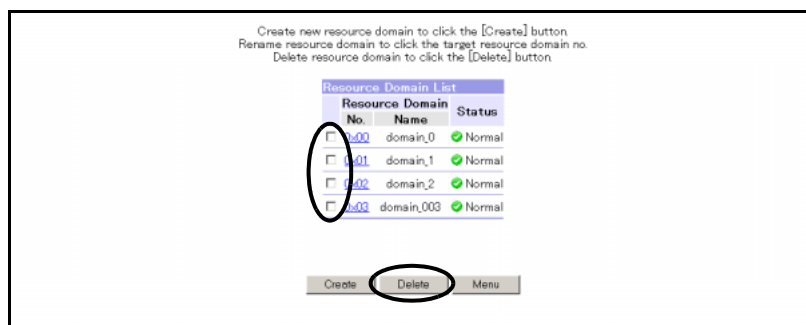
**End of procedure**

### 5.1.1.3 Delete Resource Domains

This section explains procedures for deleting Resource Domains.

#### Procedure

- 1** Click [Set Resource Domain] under the Resource Domain Management in the [Configuration] menu.  
 → The [Set Resource Domain (Resource Domain List)] screen appears.
- 2** Select the Resource Domains to be deleted (multiple selections can be made), and click the [Delete] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Set Resource Domain (Check Resource Domain Deletion)] screen appears.

#### Caution

- When Resource Domains are not registered in the ETERNUS DX400/DX8000 series, the [Delete] button is not displayed.
- If deleting the Resource Domain in which resources are assigned, the assigned resources become Shared Resources.

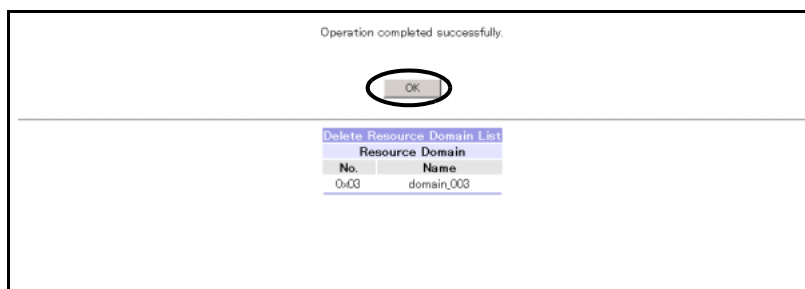
**3** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Set Resource Domain (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Set Resource Domain (Resource Domain Deletion Result)] screen appears.

**4** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Menu] screen.

End of procedure

## 5.1.2 Assign Numerical Resource

On this screen, specify the maximum number of Resources assigned to each Resource Domain (hereinafter referred to as a domain). The target Resources are as follows.

- Logical Volume
- Host WWN
- iSCSI Host
- Affinity Group
- Host Response
- Eco-mode Schedule

■ The maximum number of Resources for each model

Model	Logical Volume	Host WWN	iSCSI Host	Affinity Group	Host Response	Eco-mode Schedule
ETERNUS DX410	2048	256	256	256	255	64
ETERNUS DX440	4096	256	256	256	255	64
ETERNUS DX8100	4096	256	256	256	255	64
ETERNUS DX8400	16384	1024	1024	512	255	64
ETERNUS DX8700	16384	1024	1024	512	255	64

**Caution** 

The [Assign Numerical Resource] menu is not displayed in the following conditions:

- When the current user account does not support the [Assign Numerical Resource] function
- When no domains are registered in the ETERNUS DX400/DX8000 series
- When logged on using a Resource Domain Administrator account

 **Note**

- Set the maximum number of Resources using the [Assign Numerical Resource] function, and assign the Resource to the domain using the [Assign Resources] function. The maximum number of Resources specified in the [Assign Numerical Resource] function determines the upper limit of the number of Resources which can be assigned to the domain.
- The Assignable Resources (the maximum number of Resources) for "Host WWN", "iSCSI Host", and "Affinity Group" can be specified even when the Host-Affinity function is not used.
- The Assignable Resources for "Eco-mode Schedule" can be specified even when the Eco-mode is inactive.

This section explains Numerical Resource settings.

**Procedure**

- 1 Click [Assign Numerical Resource] under the Resource Domain Management in the [Configuration] menu.  
→ The [Assign Numerical Resource (Initial)] screen appears.

**2** Select the target Resource to change the Assignable Resources, and click the [Change] button.

The Assignable Resources for the following Resources can be changed.

- Logical Volume
- Host WWN
- iSCSI Host
- Affinity Group
- Host Response
- Eco-mode Schedule

Change Numeric Resources to select a target resource and click the [Change] button

Resource: Logical Volume Change

Numeric Resources Settings							
Resource No.	Domain Name	Logical Volume	Host WWN	iSCSI Host	Affinity Group	Host Response	ECO Mode Schedule
0x00	domain_0	1024	64	32	128	128	12
0x01	domain_1	1024	64	32	64	64	12
0x02	domain_2	1024	64	32	32	32	12

Set
Menu

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Numerical Resource (Set Assignable Resources)] screen appears.

Refer to "[A.8.1 Assign Numerical Resource \(Set Assignable Resources\) Screen](#)" ([page 704](#)) for screen details.

**3** Change the Assignable Resources, and click the [Set] button.

Logical Volume Settings			
Resource No.	Domain Name	Assignable Resources	Assigned Resources
0x00	domain_0	1024	512
0x01	domain_1	1024	256
0x02	domain_2	1024	128
Total Assignable Resources		3072	
Maximum Assignable Resources		16384	

Set
Return

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Assign Numerical Resource (Initial)] screen.

Repeat [Step 2](#) and [Step 3](#) to change multiple Assignable Resources.

After changing the number of Assignable Resources, move on to [Step 4](#).

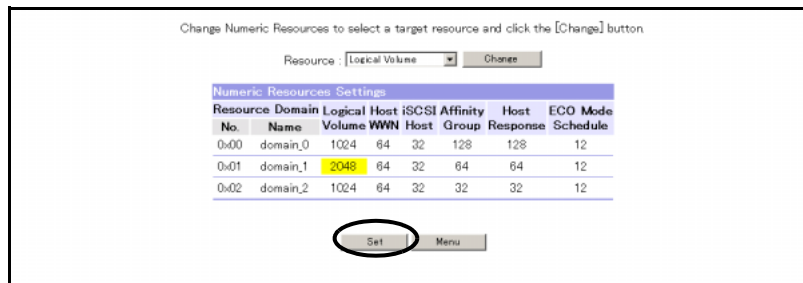
**Caution** 

- For "Assignable Resources", smaller values than "Assigned Resources" can be specified.
- The total number of "Assignable Resources" for each domain is displayed in "Total Assignable Resources". If the total value exceeds the "Maximum Assignable Resources", the [Set] button cannot be clicked.
- For Logical Volumes, Assignable Resources include the following volumes.
  - Logical Volumes in which the volume type is "Open", "SDV", and "TPV"
  - Concatenation destination volumes for LUN Concatenation
  - Work volumes when performing RAID Migration (volumes temporarily created during the RAID Migration, and deleted after the process is complete)
  - Work volumes when performing balancing of a Thin Provisioning Volume (volumes temporarily created during the balancing of a Thin Provisioning Volume, and deleted after the process is complete)

Set a sufficient number of Assignable Resources for Logical Volumes. If the Assignable Resources for a Logical Volume in the domain are not enough, some functions, such as LUN Concatenation, RAID Migration, and Balance Thin Provisioning Volume, cannot be used.

**4** Click the [Set] button.

The changed Assignable Resources are displayed with yellow backgrounds.



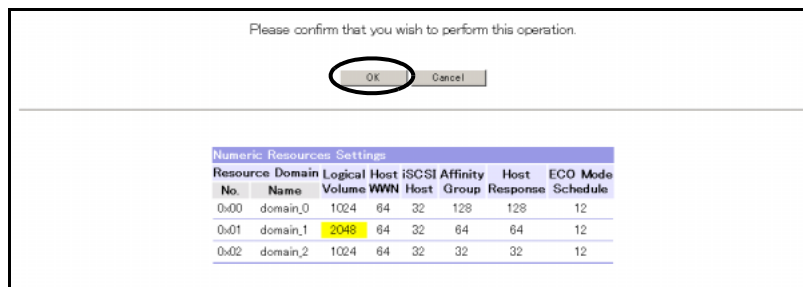
Resource No.	Domain Name	Logical Volume	Host WWN	Host Group	ISCSI Affinity	Host Response	ECO Mode Schedule
0x00	domain_0	1024	64	32	128	128	12
0x01	domain_1	2048	64	32	64	64	12
0x02	domain_2	1024	64	32	32	32	12

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Numerical Resource (Check Setting)] screen appears.

**5** Click the [OK] button.

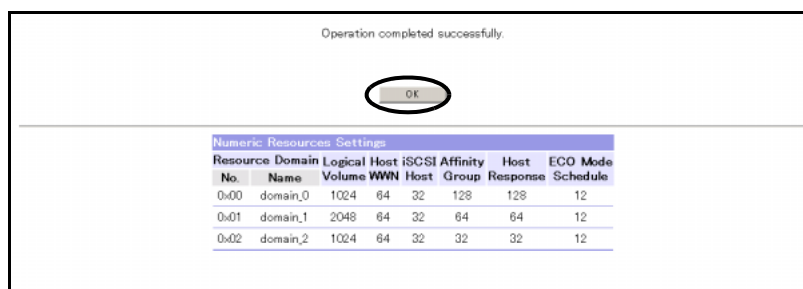
The changed Assignable Resources are displayed with yellow backgrounds.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Numerical Resource (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Assign Numerical Resource (Setting Result)] screen appears.

**6** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Assign Numerical Resource (Initial)] screen.

**7** Click the [Menu] button.

→ Returns to the [Menu] screen.

End of procedure

### 5.1.3 Assign Resources

---

On this screen, assign each resource to a Resource Domain (hereinafter referred to as a domain), or change the domain where each resource is being assigned. The target resources are as follows.

- RAID Group
- Thin Provisioning Pool
- Host World Wide Name
- iSCSI Host
- Affinity Group
- Host Response
- Eco-mode Schedule

■ Conditions in which a RAID Group can Assign to Domain/Change Assigned Domain

- A RAID Group in which the LDE is not in progress
- A RAID Group that is not registered in the Thin Provisioning Pool
- A RAID Group that is not a working RAID Group which is created during the LDE process (displayed "TMP" for Usage)
- A RAID Group that does not include a source or a destination Logical Volume for the RAID Migration
- A RAID Group that does not include Logical Volumes that are concatenated to the volumes in other RAID Groups
- When the Advanced Copy between domains is not allowed, a RAID Group that does not include a copy source or a copy destination Logical Volume for EC
- When the Advanced Copy between domains is not allowed, a RAID Group that does not include a copy source or a copy destination Logical Volume for OPC (including QuickOPC, SnapOPC, and SnapOPC+)
- A RAID Group that does not include Logical Volumes (except MVV) which are being mapped (Host-Affinity Settings)
- A RAID Group in which no Eco-mode setting is specified
- A RAID Group that is not registered as the REC Disk Buffer

- Conditions in which a Thin Provisioning Pool (TPP) can Assign to Domain/Change Assigned Domain
  - A TPP in which no Eco-mode setting is specified
  - A TPP that does not include a source or a destination Logical Volume (TPV) for the RAID Migration
  - When the Advanced Copy between domains is not allowed, a TPP that does not include a copy source or a copy destination Logical Volume (TPV) for EC
  - When the Advanced Copy between domains is not allowed, a TPP that does not include a copy source or a copy destination Logical Volume (TPV) for OPC (including QuickOPC, SnapOPC, and SnapOPC+)
  - A TPP that does not include Logical Volumes (TPV) which are being mapped (Host-Affinity Settings)
  - A TPP that does not include Logical Volumes (TPV) in which the balancing of a TPV is in progress
- Condition in which a Host World Wide Name can Assign to Domain/Change Assigned Domain
  - A Host World Wide Name that is not registered in a Host-Affinity Group
- Condition in which an iSCSI Host can Assign to Domain/Change Assigned Domain
  - An iSCSI Host that is not registered in a Host-Affinity Group
- Condition in which an Affinity Group can Assign to Domain/Change Assigned Domain
  - An Affinity Group that is not registered in a Host-Affinity Group
- Conditions in which a Host Response can Assign to Domain/Change Assigned Domain
  - A Host Response that is assigned to the Resource Domains other than the Shared Resource (Share)
  - When the Host Response is assigned to the Shared Resource, all the Host World Wide Names and iSCSI hosts that refer to the relevant Host Response are assigned to the same Resource Domain or Shared Resource
- Conditions in which an Eco-mode Schedule can Assign to Domain/Change Assigned Domain
  - An Eco-mode schedule that is not specified to the RAID Group
  - An Eco-mode schedule that is not specified to the TPP

**Caution**



- The [Assign Resources] menu is not displayed in the following conditions:
  - When the current user account does not support the [Assign Resources] function
  - When no domains are registered in the ETERNUS DX400/DX8000 series
  - When logged on using a Resource Domain Administrator account
- Resources exceeding the maximum number specified using the [Assign Numerical Resource] function cannot be assigned.
- When the Assigned Domain of a RAID Group is changed, Assigned Domains for Open Logical Volumes (Open and SDV) in the relevant RAID Group are also changed to the same Domain as the RAID Group.
- When the Assigned Domain of a TPP is changed, Assigned Domains for RAID Groups that configure the TPP and Assigned Domains for Logical Volumes (TPV) in the relevant TPP are also changed to the same Domain as the TPP. Domains for RAID Groups that configure the TPP cannot be changed without changing the Assigned Domain of the TPP.
- When the Assigned Domain of an Affinity Group is changed, all the mappings that are allocated to the relevant Affinity Group are deleted. After changing the Resource Domain, only the Affinity Group number and Affinity Group name of the relevant Affinity Group remain.
- Even when the Assigned Domain for the Host Response is changed, the Assigned Domain for the Host World Wide Name and the iSCSI Host to which the relevant Host Response is allocated remains the same.



**Note**

Resources which are not assigned to a domain are called Shared Resources. Shared Resources can be accessed from all the domains.

This section explains Assigning Resources settings.  
The following settings are available.

- [Assigning RAID Group](#)
- [Assigning Thin Provisioning Pool](#)
- [Assigning Host World Wide Name](#)
- [Assigning iSCSI Host](#)
- [Assigning Affinity Group](#)
- [Assigning Host Response](#)
- [Assigning Eco-mode Schedule](#)

Procedures for each operation are described below.

### 5.1.3.1 Assigning RAID Group

This section explains Assigning RAID Group settings.

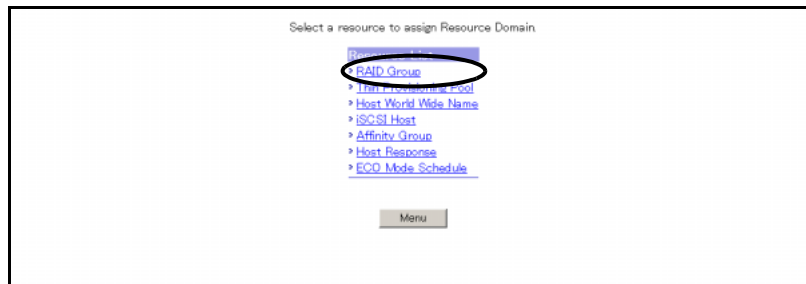
#### Procedure

- 1 Click [Assign Resources] under the Resource Domain Management in the [Configuration] menu.  
→ The [Assign Resources (Select Resource)] screen appears.

#### Caution

If logged on using a user account that does not support any of the "RAID Group Settings - Change", "Host Settings - Open", and "Eco-mode", the [Suppress Function] screen appears. Click the [OK] button to return to the [Menu] screen.

- 2 Click the [RAID Group] link.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

- The [Assign Resources (Set RAID Group)] screen appears.  
Refer to ["A.9.1 Assign Resources \(Set RAID Group\) Screen" \(page 705\)](#) for screen details.

#### Caution

- If logged on using a user account that does not support the "RAID Group Settings - Change", the [RAID Group] link is not displayed.
- When obtaining RAID Group information, a message to that effect is displayed. Wait until the process is complete.
- If there are no RAID Groups registered in the ETERNUS DX400/DX8000 series that can be assigned to domains, the [Suppress Function] screen appears. Click the [OK] button to return to the [Assign Resources (Select Resource)] screen.

**3** Change the Assigned Domain of the RAID Group, and click the [Set] button.

■ To set using [Set Range]

- (1) Enter the first and last RAID Group numbers.
- (2) Select a domain to assign the specified range of the RAID Groups from the list box.
- (3) Click the [Execute] button.

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

**Caution**

If the [Execute] button is clicked in the following conditions, an error screen appears.

- Both or one of the "From: RAID Group#" or "To: RAID Group#" field is blank
- Characters other than hexadecimal numbers are specified in the "From: RAID Group#" or "To: RAID Group#" field
- There are no RAID Groups where the Assigned Domain can be changed in the range specified by the "From: RAID Group#" and "To: RAID Group#"

**Note**

The Set Range setting is performed when there is at least one RAID Group that satisfies all the conditions described in ["Conditions in which a RAID Group can Assign to Domain/Change Assigned Domain" \(page 108\)](#).

■ To select an individual RAID Group

- (1) Select the domain to assign the relevant RAID Group from the RAID Group List using the list box.

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)



Note

A list box is displayed for the RAID Group where the Assigned Domain can be changed. For RAID Groups where the Assigned Domain cannot be changed, domain information is displayed in text format.

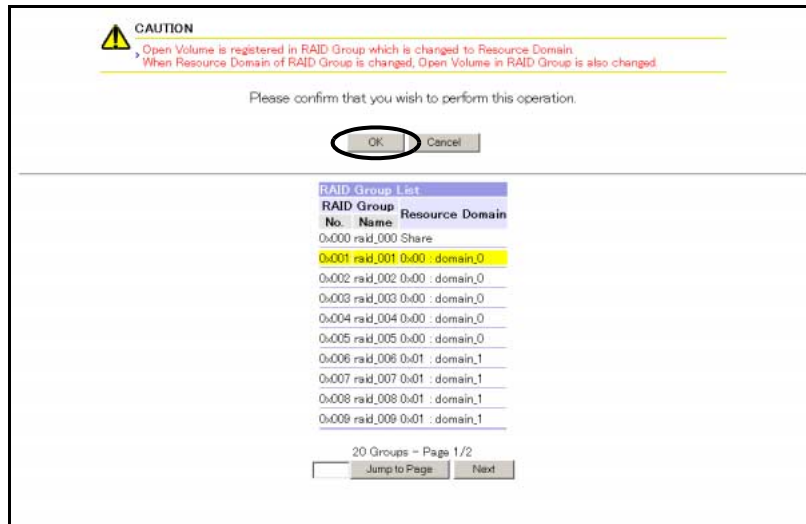
→ The [Assign Resources (Check RAID Group Settings)] screen appears.

**Caution**

When the Assigned Domain for the RAID Group is changed, the Assigned Domain for Open Logical Volumes (Open and SDV) in the relevant RAID Group is also changed. Domains for migration source volumes (Temporary volumes), which fail to be deleted after RAID Migration is complete, or domains for concatenated volumes in the relevant RAID Group, are also changed. If the total number of Logical Volumes (Open, SDV, Temporary, Concatenated Volume, and TPV) in the domain exceeds the maximum number specified using the [Assign Numerical Resource] function, an error screen appears.

**4** Click the [OK] button.

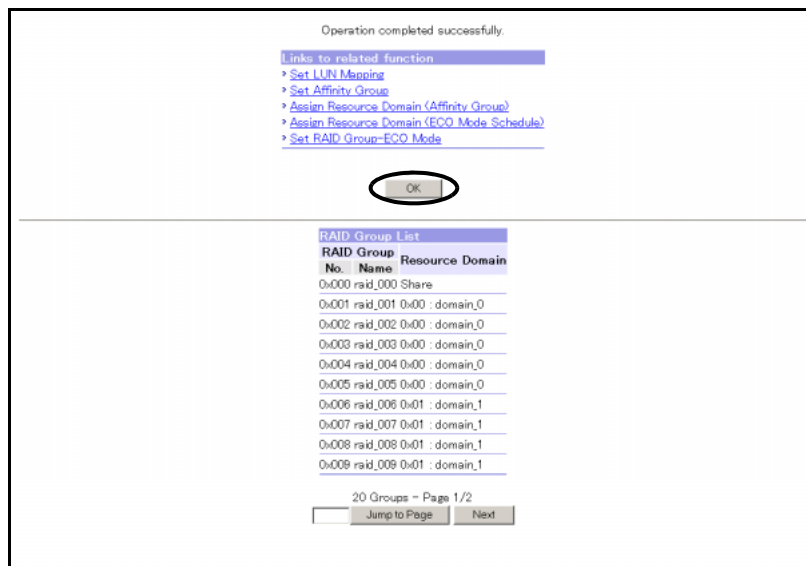
A RAID Group in which the Assigned Domain has been changed is displayed with a yellow background.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Resources (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Assign Resources (RAID Group Setting Result)] screen appears.

**5** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Assign Resources (Select Resource)] screen.



Note

- If logged on using a user account that supports "Host Settings - Open", the [Set LUN Mapping] link, the [Set Affinity Group] link, and the [Assign Resource Domain (Affinity Group)] link are displayed.
  - If setting the LUN Mapping, click the [Set LUN Mapping] link.
  - If setting the Affinity Group, click the [Set Affinity Group] link.
  - If changing the domain of the Affinity Group, click the [Assign Resource Domain (Affinity Group)] link.
- If logged on using a user account that supports "Eco-mode", the [Assign Resource Domain (Eco-mode Schedule)] link and the [Set RAID Group-Eco-mode] link are displayed.
  - If changing the domain of the Eco-mode schedule, click the [Assign Resource Domain (Eco-mode Schedule)] link.
  - If setting the Eco-mode schedule to the RAID Group, click the [Set RAID Group-Eco-mode] link.

- 6** Click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

### 5.1.3.2 Assigning Thin Provisioning Pool

This section explains Assigning Thin Provisioning Pool settings.

#### Procedure

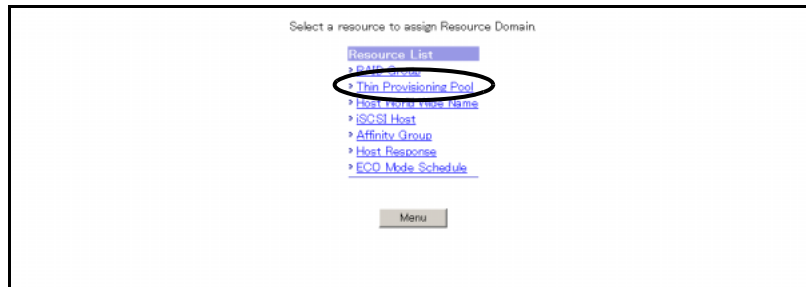
- 1** Click [Assign Resources] under the Resource Domain Management in the [Configuration] menu.  
→ The [Assign Resources (Select Resource)] screen appears.



Caution

If logged on using a user account that does not support any of the "RAID Group Settings - Change", "Host Settings - Open", and "Eco-mode", the [Suppress Function] screen appears. Click the [OK] button to return to the [Menu] screen.

**2** Click the [Thin Provisioning Pool] link.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Resources (Set TPP)] screen appears.

Refer to "[A.9.2 Assign Resources \(Set TPP\) Screen](#)" ([page 706](#)) for screen details.

**Caution** 

- If logged on using a user account that does not support the "RAID Group Settings - Change", the [Thin Provisioning Pool] link is not displayed.
- When obtaining TPP information, a message to that effect is displayed. Wait until the process is complete.
- If there are no TPPs registered in the ETERNUS DX400/DX8000 series that can be assigned to domains, the [Suppress Function] screen appears. Click the [OK] button to return to the [Assign Resources (Select Resource)] screen.

**3** Change the Assigned Domain of the TPP, and click the [Set] button.

■ To set using [Set Range]

(1) Enter the first and last TPP numbers.

(2) Select the domain to assign the specified range of the TPPs from the list box.

(3) Click the [Execute] button.

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

**Caution**

If the [Execute] button is clicked in the following conditions, an error screen appears.

- Both or one of the "From: TPP No." or "To: TPP No." field is blank
- Characters other than hexadecimal numbers are specified in the "From: TPP No." or "To: TPP No." field
- There are no TPPs where the Assigned Domain can be changed in the range specified by the "From: TPP No." and "To: TPP No."

**Note**

The Set Range setting is performed when there is at least one TPP that satisfies all the conditions described in ["Conditions in which a Thin Provisioning Pool \(TPP\) can Assign to Domain/Change Assigned Domain" \(page 109\)](#).

■ To select an individual TPP

- (1) Select the domain to assign the relevant TPP from the Thin Provisioning Pool List using the list box.

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)



Note

A list box is displayed for a TPP where the Assigned Domain can be changed. For TPPs where the Assigned Domain cannot be changed, domain information is displayed in text format.

→ The [Assign Resources (Check TPP Settings)] screen appears.



Caution

When the Assigned Domain for the TPP is changed, the Assigned Domains, for RAID Groups that configure the TPP and for Logical Volumes (TPV) in the relevant TPP, are also changed. Domains for migration source volumes (Temporary volumes), which fail to be deleted after RAID Migration is complete, or domains for work volumes (Temporary volumes), which fail to be deleted after TPV balancing, are also changed. If the total number of Logical Volumes (Open, SDV, Temporary, Concatenated Volume, and TPV) in the domain exceeds the maximum number specified using the [Assign Numerical Resource] function, an error screen appears.

**4** Click the [OK] button.

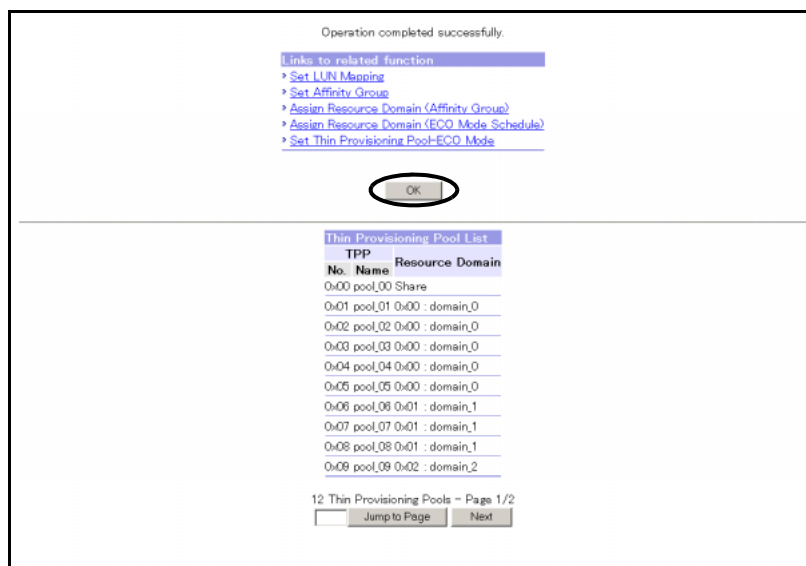
A TPP in which the Assigned Domain has been changed is displayed with a yellow background.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Resources (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Assign Resources (TPP Setting Result)] screen appears.

**5** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Assign Resources (Select Resource)] screen.



Note

- If logged on using a user account that supports "Host Settings - Open", the [Set LUN Mapping] link, the [Set Affinity Group] link, and the [Assign Resource Domain (Affinity Group)] link are displayed.
  - If setting the LUN Mapping, click the [Set LUN Mapping] link.
  - If setting the Affinity Group, click the [Set Affinity Group] link.
  - If changing the domain of the Affinity Group, click the [Assign Resource Domain (Affinity Group)] link.
- If logged on using a user account that supports "Eco-mode", the [Assign Resource Domain (Eco-mode Schedule)] link and the [Set Thin Provisioning Pool-Eco-mode] link are displayed.
  - If changing the domain of the Eco-mode schedule, click the [Assign Resource Domain (Eco-mode Schedule)] link.
  - If setting the Eco-mode schedule to the TPP, click the [Set Thin Provisioning Pool-Eco-mode] link.

- 6** Click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

### 5.1.3.3 Assigning Host World Wide Name

This section explains Assigning Host World Wide Name settings.

#### Procedure

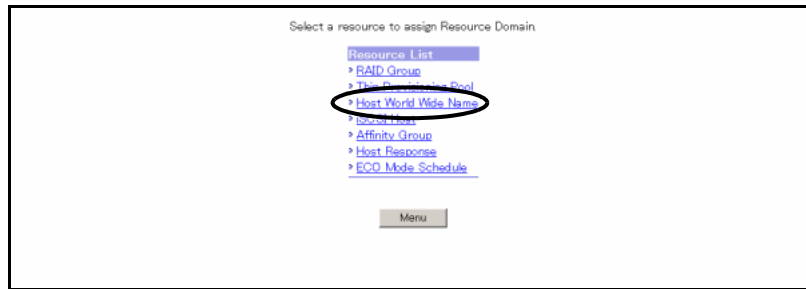
- 1** Click [Assign Resources] under the Resource Domain Management in the [Configuration] menu.  
→ The [Assign Resources (Select Resource)] screen appears.



Caution

If logged on using a user account that does not support any of the "RAID Group Settings - Change", "Host Settings - Open", and "Eco-mode", the [Suppress Function] screen appears. Click the [OK] button to return to the [Menu] screen.

**2** Click the [Host World Wide Name] link.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Resources (Set Host WWN)] screen appears.

Refer to ["A.9.3 Assign Resources \(Set Host WWN\) Screen" \(page 707\)](#) for screen details.

**Caution** 

- If logged on using a user account that does not support the "Host Settings - Open", the [Host World Wide Name] link is not displayed.
- If there is no Host World Wide Name registered in the ETERNUS DX400/DX8000 series that can be assigned to domains, the [Suppress Function] screen appears. Click the [OK] button to return to the [Assign Resources (Select Resource)] screen.

- 3** Change the Assigned Domain of the Host World Wide Name, and click the [Set] button.
- The "Host Table information (Host Table number and Host Table name (if the name is registered))" for the relevant Host World Wide Name is displayed in the Host World Wide Name List.
- To set using [Set Range]
- (1) Enter the first and last Host Table numbers.
- (2) Select the domain to assign the specified range of the Host Tables from the list box.
- (3) Click the [Execute] button.

The screenshot shows the 'Assign Resource Domain (Host World Wide Name)' dialog box. It has fields for 'From: Host Table# 0x' and 'To: Host Table# 0x', a 'Resource Domain' dropdown menu, and an 'Execute' button. Below the dialog is the 'Host World Wide Name List' table. The table has columns for 'Host Table No.', 'Name', and 'Resource Domain'. It lists 10 entries (0x000 to 0x009) with their respective names and assigned domains. At the bottom of the table, there is a 'Set' button and a 'Return' button. The 'Set' button is circled in red.

Host Table No.	Name	Resource Domain
0x000	host1_000	Share
0x001	host1_001	Share
0x002	host1_002	0x00 : domain_0
0x003	host1_003	0x00 : domain_0
0x004	host1_004	0x00 : domain_0
0x005	host1_005	0x01 : domain_1
0x006	host1_006	0x01 : domain_1
0x007	host1_007	0x01 : domain_1
0x008	host1_008	0x01 : domain_1
0x009	host1_009	0x02 : domain_2

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

**Caution**

If the [Execute] button is clicked in the following conditions, an error screen appears.

- Both or one of the "From: Host Table#" or "To: Host Table#" field is blank
- Characters other than hexadecimal numbers are specified in the "From: Host Table#" or "To: Host Table#" field
- There are no Host World Wide Names where the Assigned Domain can be changed in the range specified by the "From: Host Table#" and "To: Host Table#"

**Note**

The Set Range setting is performed when there is at least one Host World Wide Name that satisfies the condition described in ["Condition in which a Host World Wide Name can Assign to Domain/Change Assigned Domain" \(page 109\)](#).

■ To select an individual Host World Wide Name

- (1) Select the domain to assign the relevant Host Table from the Host World Wide Name List using the list box.

Host Table No.	Name	Resource Domain
0x000	host1_000	Share
0x001	host1_001	Share
0x002	host1_002	0x00 : domain_0
0x003	host1_003	0x00 : domain_0
0x004	host1_004	0x00 : domain_0
0x005	host1_005	0x01 : domain_1
0x006	host1_006	0x01 : domain_1
0x007	host1_007	0x01 : domain_1
0x008	host1_008	0x01 : domain_1
0x009	host1_009	0x02 : domain_2

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)



Note

A list box is displayed for the Host Table where the Assigned Domain can be changed. For Host Tables where the Assigned Domain cannot be changed, domain information is displayed in text format.

→ The [Assign Resources (Check Host WWN Settings)] screen appears.

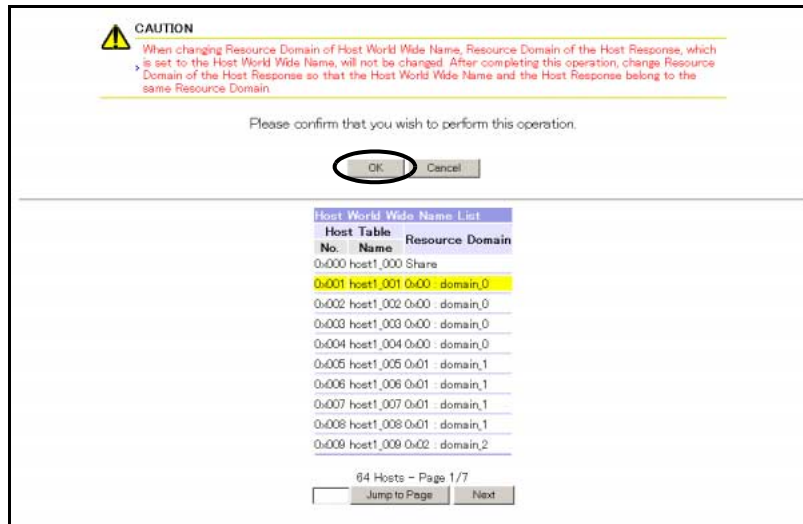


Caution

If the total number of Host World Wide Names in the domain exceeds the maximum number specified using the [Assign Numerical Resource] function, an error screen appears.

**4** Click the [OK] button.

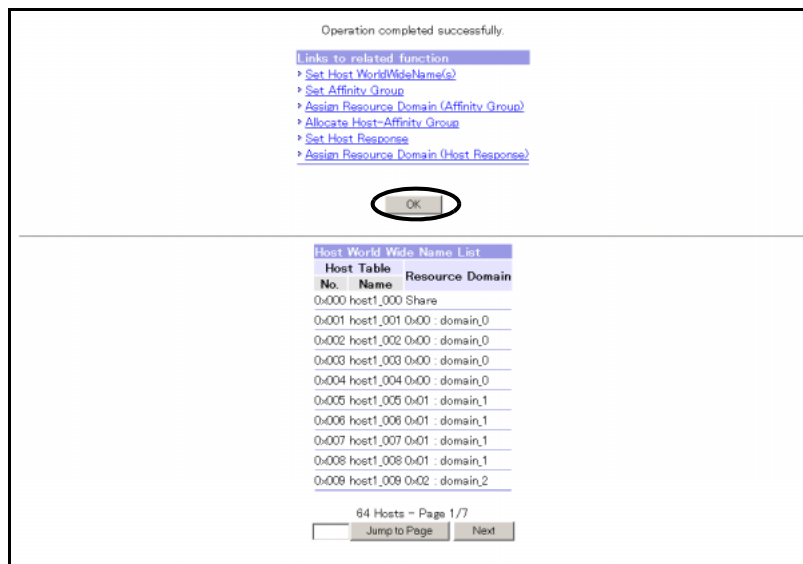
A Host World Wide Name in which the Assigned Domain has been changed is displayed with a yellow background.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Resources (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Assign Resources (Host WWN Setting Result)] screen appears.

**5** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Assign Resources (Select Resource)] screen.



Note

- If setting the Host World Wide Name, click the [Set Host WorldWideName(s)] link.
- If setting the Affinity Group, click the [Set Affinity Group] link.
- If changing the domain of the Affinity Group, click the [Assign Resource Domain (Affinity Group)] link.
- If setting the Host-Affinity Group, click the [Allocate Host-Affinity Group] link.
- If setting the Host Response, click the [Set Host Response] link.
- If changing the domain of the Host Response, click the [Assign Resource Domain (Host Response)] link.

- 6** Click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

### 5.1.3.4 Assigning iSCSI Host

This section explains Assigning iSCSI Host settings.

#### Procedure

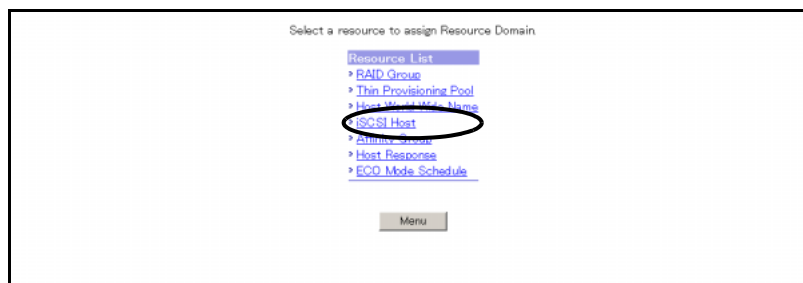
- 1** Click [Assign Resources] under the Resource Domain Management in the [Configuration] menu.  
→ The [Assign Resources (Select Resource)] screen appears.



Caution

If logged on using a user account that does not support any of the "RAID Group Settings - Change", "Host Settings - Open", and "Eco-mode", the [Suppress Function] screen appears. Click the [OK] button to return to the [Menu] screen.

- 2** Click the [iSCSI Host] link.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

- The [Assign Resources (Set iSCSI Host)] screen appears.  
Refer to ["A.9.4 Assign Resources \(Set iSCSI Host\) Screen" \(page 709\)](#) for screen details.

**Caution**

- If logged on using a user account that does not support the "Host Settings - Open", the [iSCSI Host] link is not displayed.
- If there is no iSCSI Host registered in the ETERNUS DX400/DX8000 series that can be assigned to domains, the [Suppress Function] screen appears. Click the [OK] button to return to the [Assign Resources (Select Resource)] screen.

- 3** Change the Assigned Domain of the iSCSI Host, and click the [Set] button.  
The "Host Table information (Host Table number and Host Table name (if the name is registered))" for the relevant iSCSI Host is displayed in the iSCSI Host List.

- To set using [Set Range]

- (1) Enter the first and last Host Table numbers.
- (2) Select the domain to assign the specified range of the Host Tables from the list box.
- (3) Click the [Execute] button.

The screenshot shows two windows. The top window, titled 'Assign Resource Domain (iSCSI Host)', has a 'Set Range' section with 'From: Host Table# 0x' and 'To: Host Table# 0x' fields, and a 'Resource Domain' dropdown menu set to 'Share'. An 'Execute' button is below. The bottom window, titled 'iSCSI Host List', contains a table with columns 'Host Table No.', 'Name', and 'Resource Domain'. It lists 10 hosts (0x0000 to 0x0009) with names like 'host2\_0000' and assigned domains like 'Share' or 'domain\_0' through 'domain\_2'. Below the table is a pagination bar showing '23 Hosts - Page 1/3' and 'Jump to Page' buttons. At the bottom of the screenshot, a 'Set' button is circled.

Host Table No.	Name	Resource Domain
0x0000	host2_0000	Share
0x0001	host2_0001	Share
0x0002	host2_0002	0x00 : domain_0
0x0003	host2_0003	0x00 : domain_0
0x0004	host2_0004	0x00 : domain_0
0x0005	host2_0005	0x01 : domain_1
0x0006	host2_0006	0x01 : domain_1
0x0007	host2_0007	0x01 : domain_1
0x0008	host2_0008	0x01 : domain_1
0x0009	host2_0009	0x02 : domain_2

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

**Caution**

If the [Execute] button is clicked in the following conditions, an error screen appears.

- Both or one of the "From: Host Table#" or "To: Host Table#" field is blank
- Characters other than hexadecimal numbers are specified in the "From: Host Table#" or "To: Host Table#" field
- There are no iSCSI Hosts where the Assigned Domain can be changed in the range specified by the "From: Host Table#" and "To: Host Table#"



Note

The Set Range setting is performed when there is at least one iSCSI Host that satisfies the condition described in "[Condition in which an iSCSI Host can Assign to Domain/Change Assigned Domain](#)" (page 109).

- To select an individual iSCSI Host

(1) Select the domain to assign the relevant iSCSI Host from the iSCSI Host List using the list box.

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)



Note

A list box is displayed for the Host Table where the Assigned Domain can be changed. For Host Tables where the Assigned Domain cannot be changed, domain information is displayed in text format.

→ The [Assign Resources (Check iSCSI Host Settings)] screen appears.

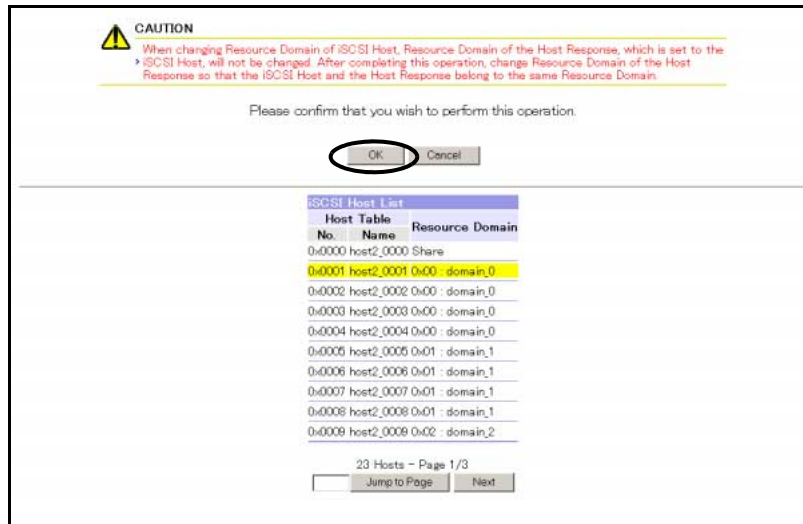


Caution

If the total number of iSCSI Hosts in the domain exceeds the maximum number specified using the [Assign Numerical Resource] function, an error screen appears.

**4** Click the [OK] button.

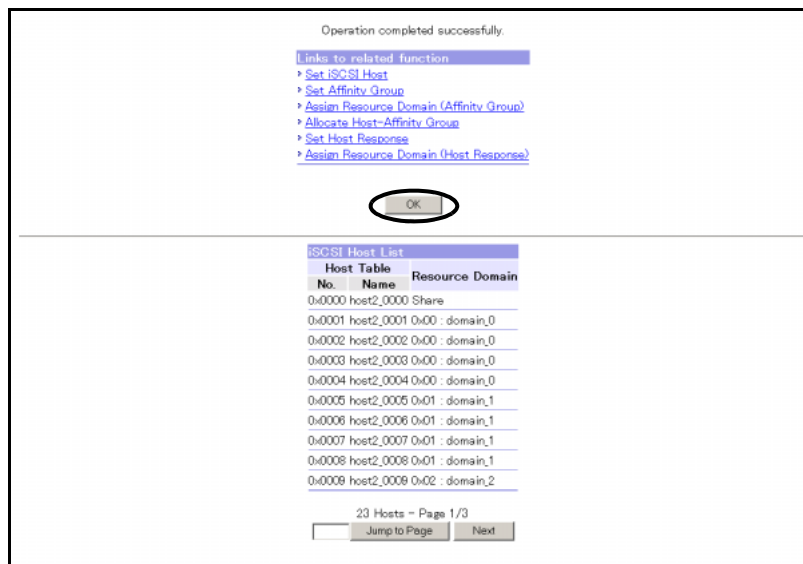
An iSCSI Host in which the Assigned Domain has been changed is displayed with a yellow background.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Resources (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Assign Resources (iSCSI Host Setting Result)] screen appears.

**5** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Assign Resources (Select Resource)] screen.



Note

- If setting the iSCSI Host, click the [Set iSCSI Host] link.
- If setting the Affinity Group, click the [Set Affinity Group] link.
- If changing the domain of the Affinity Group, click the [Assign Resource Domain (Affinity Group)] link.
- If setting the Host-Affinity Group, click the [Allocate Host-Affinity Group] link.
- If setting the Host Response, click the [Set Host Response] link.
- If changing the domain of the Host Response, click the [Assign Resource Domain (Host Response)] link.

- 6** Click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

### 5.1.3.5 Assigning Affinity Group

This section explains Assigning Affinity Group settings.

#### Procedure

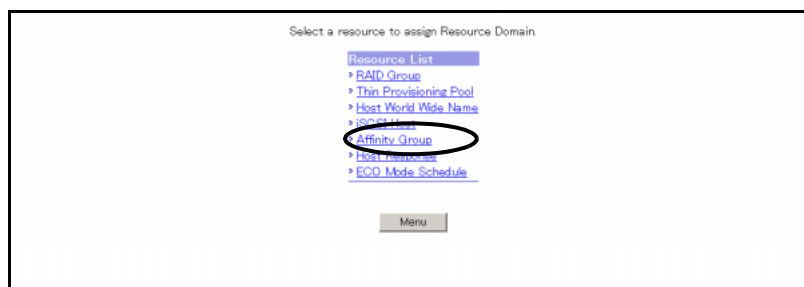
- 1** Click [Assign Resources] under the Resource Domain Management in the [Configuration] menu.  
→ The [Assign Resources (Select Resource)] screen appears.



Caution

If logged on using a user account that does not support any of the "RAID Group Settings - Change", "Host Settings - Open", and "Eco-mode", the [Suppress Function] screen appears. Click the [OK] button to return to the [Menu] screen.

- 2** Click the [Affinity Group] link.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

- The [Assign Resources (Set Affinity Group)] screen appears.  
Refer to ["A.9.5 Assign Resources \(Set Affinity Group\) Screen" \(page 710\)](#) for screen details.

**Caution**

- If logged on using a user account that does not support the "Host Settings - Open", the [Affinity Group] link is not displayed.
- If there are no Affinity Groups registered in the ETERNUS DX400/DX8000 series that can be assigned to domains, the [Suppress Function] screen appears. Click the [OK] button to return to the [Assign Resources (Select Resource)] screen.

**3** Change the Assigned Domain of the Affinity Group, and click the [Set] button.

■ To set using [Set Range]

- (1) Enter the first and last Affinity Group numbers.
- (2) Select the domain to assign the specified range of the Affinity Groups from the list box.
- (3) Click the [Execute] button.

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

**Caution**

- The domain of a Concatenated Affinity Group [0xXXX-0xYYY] is changed only when the first Affinity Group number [0xXXX] is included in the specified range. The domain is not changed even if the second Affinity Group number [0xYYY] is included in the specified range.
- If the [Execute] button is clicked in the following conditions, an error screen appears.
  - Both or one of the "From: Affinity Group#" or "To: Affinity Group#" field is blank
  - Characters other than hexadecimal numbers are specified in the "From: Affinity Group#" or "To: Affinity Group#" field
  - There are no Affinity Groups where the Assigned Domain can be changed in the range specified by the "From: Affinity Group#" and "To: Affinity Group#"



Note

The Set Range setting is performed when there is at least one Affinity Group that satisfies the condition described in ["Condition in which an Affinity Group can Assign to Domain/Change Assigned Domain"](#) (page 109).

■ To select an individual Affinity Group

(1) Select the domain to assign the relevant Affinity Group from the Affinity Group List using the list box.

**CAUTION**  
 When Resource Domain of Affinity Group is changed, Mapping which is set Affinity Group is also deleted.

**Assign Resource Domain (Affinity Group)**  
 Set Range  
 From : Affinity Group# 0x To : Affinity Group# 0x  
 Resource Domain : Share  
 Execute

No.	Name	Resource Domain
0x000	AffinityGroup000	Share
0x001	AffinityGroup001	Share
0x002	AffinityGroup002	0x00 : domain_0
0x003	AffinityGroup003	0x00 : domain_0
0x004	AffinityGroup004	0x00 : domain_0
0x005	AffinityGroup005	0x01 : domain_1
0x006	AffinityGroup006	0x01 : domain_1
0x007-0x08	AffinityGroup007	0x01 : domain_1
0x009	AffinityGroup009	0x01 : domain_1
0x00A	AffinityGroup00A	0x02 : domain_2

42 Groups - Page 1/5  
 Jump to Page Next  
 Set Return

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)



Note

A list box is displayed for the Affinity Group where the Assigned Domain can be changed. For Affinity Groups where the Assigned Domain cannot be changed, domain information is displayed in text format.

→ The [Assign Resources (Check Affinity Group Settings)] screen appears.

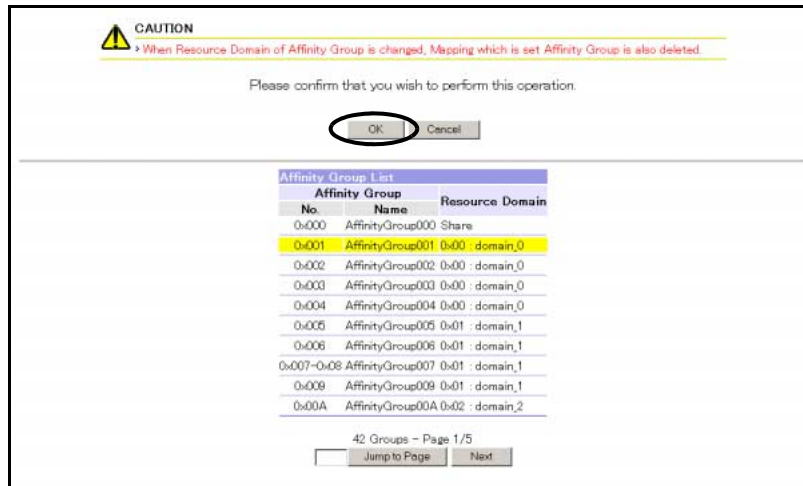


Caution

- If the total number of Affinity Groups in the domain exceeds the maximum number specified using the [Assign Numerical Resource] function, an error screen appears.
- When the Assigned Domain of an Affinity Group is changed, mapping that is allocated to the relevant Affinity Group is deleted.

**4** Click the [OK] button.

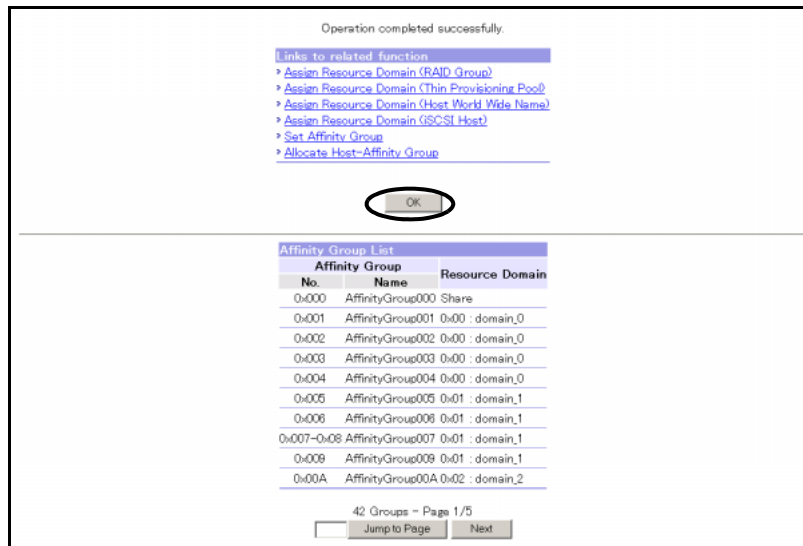
An Affinity Group in which the Assigned Domain has been changed is displayed with a yellow background.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Resources (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Assign Resources (Affinity Group Setting Result)] screen appears.

**5** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Assign Resources (Select Resource)] screen.



Note

- If logged on using a user account that supports "RAID Group Settings - Change", the [Assign Resource Domain (RAID Group)] link and the [Assign Resource Domain (Thin Provisioning Pool)] link are displayed.
  - If changing the domain of the RAID Group, click the [Assign Resource Domain (RAID Group)] link.
  - If changing the domain of the TPP, click the [Assign Resource Domain (Thin Provisioning Pool)] link.
- If changing the domain of the Host World Wide Name, click the [Assign Resource Domain (Host World Wide Name)] link.
- If changing the domain of the iSCSI Host, click the [Assign Resource Domain (iSCSI Host)] link.
- If setting the Affinity Group, click the [Set Affinity Group] link.
- If setting the Host-Affinity Group, click the [Allocate Host-Affinity Group] link.

- 6** Click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

### 5.1.3.6 Assigning Host Response

This section explains Assigning Host Response settings.

#### Procedure

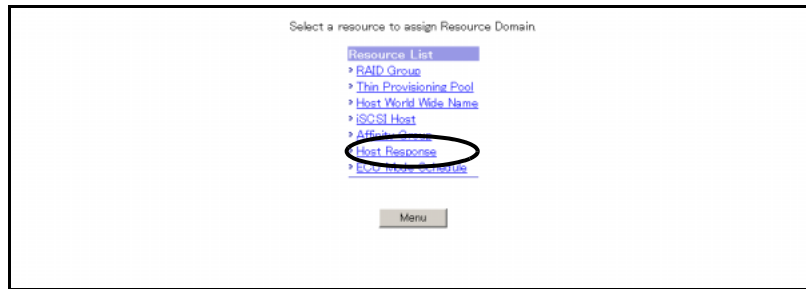
- 1** Click [Assign Resources] under the Resource Domain Management in the [Configuration] menu.  
→ The [Assign Resources (Select Resource)] screen appears.



Caution

If logged on using a user account that does not support any of the "RAID Group Settings - Change", "Host Settings - Open", and "Eco-mode", the [Suppress Function] screen appears. Click the [OK] button to return to the [Menu] screen.

**2** Click the [Host Response] link.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Resources (Set Host Response)] screen appears.

Refer to ["A.9.6 Assign Resources \(Set Host Response\) Screen" \(page 711\)](#) for screen details.

**Caution** 

- If logged on using a user account that does not support the "Host Settings - Open", the [Host Response] link is not displayed.
- If there are no Host Responses registered in the ETERNUS DX400/DX8000 series that can be assigned to domains, the [Suppress Function] screen appears. Click the [OK] button to return to the [Assign Resources (Select Resource)] screen.

**3** Change the Assigned Domain of the Host Response, and click the [Set] button.

■ To set using [Set Range]

- (1) Enter the first and last Host Response numbers.
- (2) Select the domain to assign the specified range of the Host Responses from the list box.
- (3) Click the [Execute] button.

The screenshot shows the 'Set Range' dialog box at the top, which is circled. It contains fields for 'From: Host Response 0x', 'To: Host Response 0x', and a 'Resource Domain' dropdown menu set to 'Share'. Below the dialog is the 'Host Response List' table. The table has two columns: 'Host Response No.' and 'Resource Domain'. It lists 22 host responses, with the first one (0x000) being 'Default' and 'Share'. The other responses are numbered 0x001 to 0x009, each with a domain dropdown menu. At the bottom of the table, there are 'Set' and 'Return' buttons, with the 'Set' button circled.

Host Response No.	Resource Domain
Default	Share
0x001	fuj0001
0x002	fuj0002
0x003	fuj0003
0x004	fuj0004
0x005	fuj0005
0x006	fuj0006
0x007	fuj0007
0x008	fuj0008
0x009	fuj0009

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

**Caution**

- The domain for "Host Response No.: 0x000 (Default)" is fixed to "Share". The domain for "Host Response No.: 0x000 (Default)" cannot be changed to other domains.
- If the [Execute] button is clicked in the following conditions, an error screen appears.
  - Both or one of the "From: Host Response" or "To: Host Response" field is blank
  - Characters other than hexadecimal numbers are specified in the "From: Host Response" or "To: Host Response" field
  - There are no Host Responses where the Assigned Domain can be changed in the range specified by the "From: Host Response" and "To: Host Response"

**Note**

- The Set Range setting is performed when there is at least one Host Response that satisfies all the conditions described in ["Conditions in which a Host Response can Assign to Domain/Change Assigned Domain" \(page 109\)](#).
- The Set Range setting is applied only for the Host Response that can be changed to the selected domain. Refer to ["\(Supplement\) Changing domain of a Host Response" \(page 713\)](#) for Host Responses in which the domain can be changed.

■ To select an individual Host Response

- (1) Select the domain to assign the relevant Host Response from the Host Response List using the list box.

Assign Resource Domain (Host Response)

From : Host Response 0x To : Host Response 0x

Set Range Resource Domain : Share

Execute

Host Response No.	Name	Resource Domain
Default	Share	
0x001	fuj0001	Share
0x002	fuj0002	0x00 : domain_0
0x003	fuj0003	0x00 : domain_0
0x004	fuj0004	0x00 : domain_0
0x005	fuj0005	0x01 : domain_1
0x006	fuj0006	0x01 : domain_1
0x007	fuj0007	0x01 : domain_1
0x008	fuj0008	0x01 : domain_1
0x009	fuj0009	0x02 : domain_2

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Set Return

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)



Note

A list box is displayed for the Host Response where the Assigned Domain can be changed. For Host Responses where the Assigned Domain cannot be changed, domain information is displayed in text format. Refer to ["\(Supplement\) Changing domain of a Host Response" \(page 713\)](#) for Host Responses in which the domain can be changed.

→ The [Assign Resources (Check Host Response Settings)] screen appears.

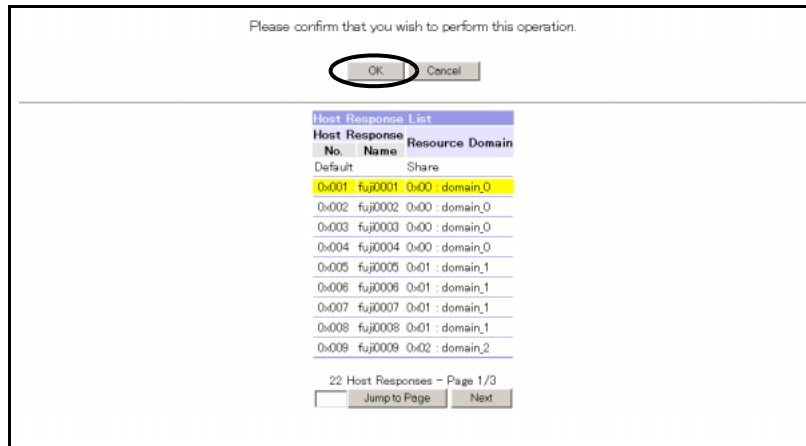


Caution

If the total number of Host Responses in the domain exceeds the maximum number specified using the [Assign Numerical Resource] function, an error screen appears.

**4** Click the [OK] button.

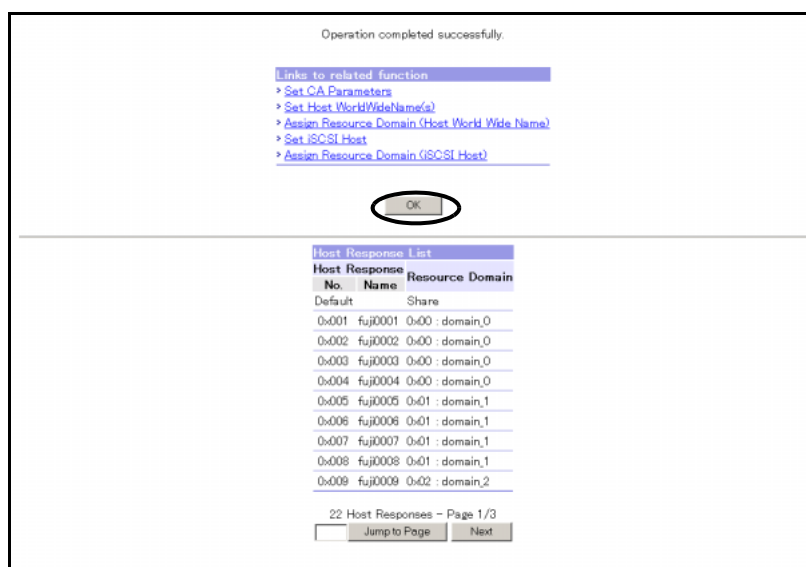
A Host Response in which the Assigned Domain has been changed is displayed with a yellow background.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Resources (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Assign Resources (Host Response Setting Result)] screen appears.

**5** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Assign Resources (Select Resource)] screen.



Note

- If setting the CA parameters, click the [Set CA Parameters] link.
- If setting the Host World Wide Name, click the [Set Host WorldWideName(s)] link.
- If changing the domain of the Host World Wide Name, click the [Assign Resource Domain (Host World Wide Name)] link.
- If setting the iSCSI Host, click the [Set iSCSI Host] link.
- If changing the domain of the iSCSI Host, click the [Assign Resource Domain (iSCSI Host)] link.

- 6 Click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

### 5.1.3.7 Assigning Eco-mode Schedule

This section explains Assigning Eco-mode schedule settings.

#### Procedure

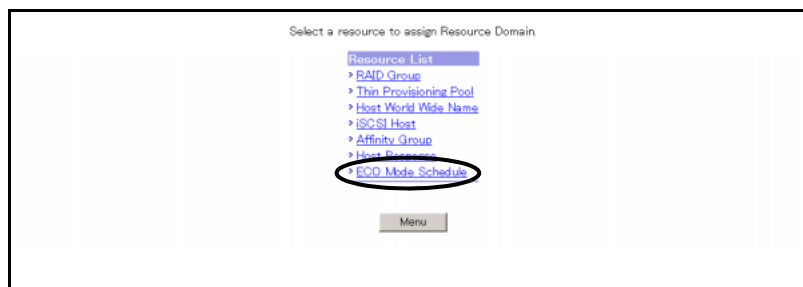
- 1 Click [Assign Resources] under the Resource Domain Management in the [Configuration] menu.  
→ The [Assign Resources (Select Resource)] screen appears.



Caution

If logged on using a user account that does not support any of the "RAID Group Settings - Change", "Host Settings - Open", and "Eco-mode", the [Suppress Function] screen appears. Click the [OK] button to return to the [Menu] screen.

- 2 Click the [Eco-mode Schedule] link.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

- The [Assign Resources (Set Eco-mode Schedule)] screen appears.  
Refer to ["A.9.7 Assign Resources \(Set Eco-mode Schedule\) Screen" \(page 714\)](#) for screen details.

**Caution**

- If logged on using a user account that does not support the "Eco-mode", the [Eco-mode Schedule] link is not displayed.
- If there are no Eco-mode schedules registered in the ETERNUS DX400/DX8000 series that can be assigned to domains, the [Suppress Function] screen appears. Click the [OK] button to return to the [Assign Resources (Select Resource)] screen.

**3** Change the Assigned Domain of the Eco-mode schedule, and click the [Set] button.

■ To set using [Set Range]

(1) Enter the first and last Eco-mode schedule numbers.

(2) Select the domain to assign the specified range of the Eco-mode schedule from the list box.

(3) Click the [Execute] button.

No.	Name	Resource Domain
0x00	Sche000	Share
0x01	Sche001	Share
0x02	Sche002	0x00 : domain_0
0x03	Sche003	0x00 : domain_0
0x04	Sche004	0x00 : domain_0
0x05	Sche005	0x00 : domain_0
0x06	Sche006	0x01 : domain_1
0x07	Sche007	0x01 : domain_1
0x08	Sche008	0x01 : domain_1
0x09	Sche009	0x02 : domain_2

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

**Caution**

If the [Execute] button is clicked in the following conditions, an error screen appears.

- Both or one of the "From: Eco-mode Schedule#" or "To: Eco-mode Schedule#" field is blank
- Characters other than hexadecimal numbers are specified in the "From: Eco-mode Schedule#" or "To: Eco-mode Schedule#" field
- There are no Eco-mode schedules where the Assigned Domain can be changed in the range specified by the "From: Eco-mode Schedule#" and "To: Eco-mode Schedule#"



Note

The Set Range setting is performed when there is at least one Eco-mode schedule that satisfies all the conditions described in ["Conditions in which an Eco-mode Schedule can Assign to Domain/Change Assigned Domain"](#) (page 109).

■ To select an individual Eco-mode Schedule

(1) Select the domain to assign the relevant Eco-mode schedule from the Eco-mode Schedule List using the list box.

No.	Name	Resource Domain
0x00	Sche000	Share
0x01	Sche001	Share
0x02	Sche002	0x00 : domain_0
0x03	Sche003	0x00 : domain_0
0x04	Sche004	0x00 : domain_0
0x05	Sche005	0x00 : domain_0
0x06	Sche006	0x01 : domain_1
0x07	Sche007	0x01 : domain_1
0x08	Sche008	0x01 : domain_1
0x09	Sche009	0x02 : domain_2

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 Jump to Page Next

Set Return

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)



Note

A list box is displayed for the Eco-mode schedule where the Assigned Domain can be changed. For Eco-mode schedules where the Assigned Domain cannot be changed, domain information is displayed in text format.

→ The [Assign Resources (Check Eco-mode Schedule Settings)] screen appears.

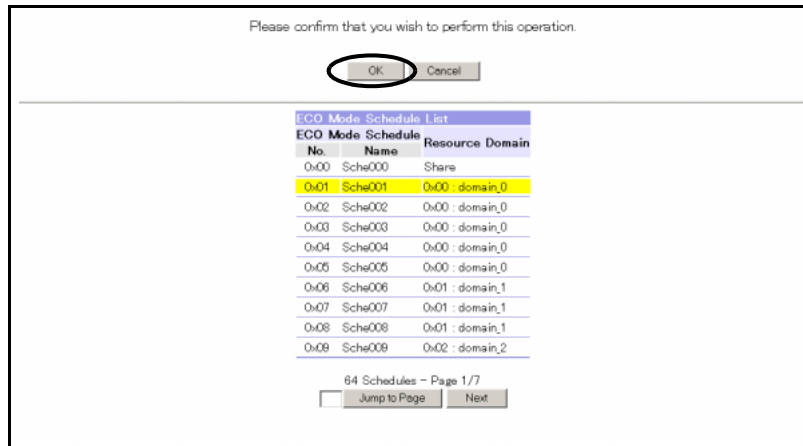


Caution

If the total number of Eco-mode schedules in the domain exceeds the maximum number specified using the [Assign Numerical Resource] function, an error screen appears.

**4** Click the [OK] button.

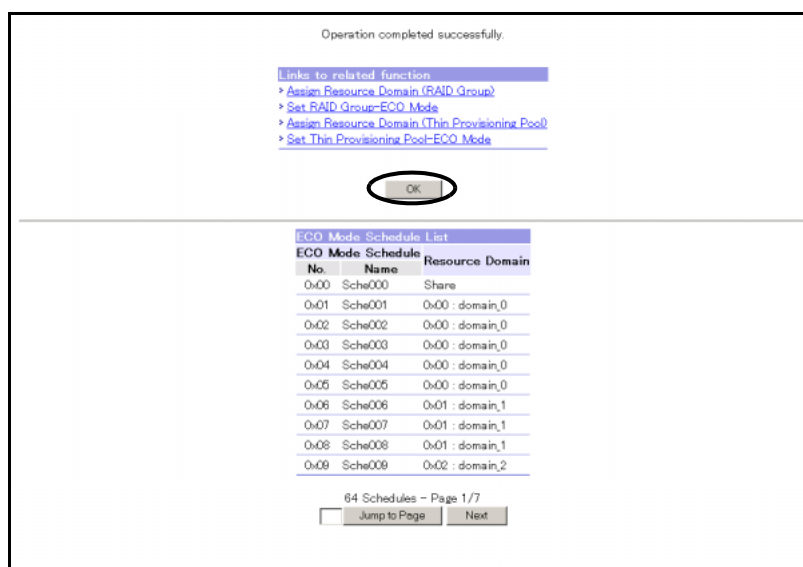
An Eco-mode schedule in which the Assigned Domain has been changed is displayed with a yellow background.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Assign Resources (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Assign Resources (Eco-mode Schedule Setting Result)] screen appears.

**5** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Assign Resources (Select Resource)] screen.



Note

- If logged on using a user account that supports "RAID Group Settings - Change", the [Assign Resource Domain (RAID Group)] link and the [Assign Resource Domain (Thin Provisioning Pool)] link are displayed.
  - If changing the domain of the RAID Group, click the [Assign Resource Domain (RAID Group)] link.
  - If changing the domain of the TPP, click the [Assign Resource Domain (Thin Provisioning Pool)] link.
- When setting the Eco-mode schedule to the RAID Group, click the [Set RAID Group-Eco-mode] link.
- When setting the Eco-mode schedule to the TPP, click the [Set Thin Provisioning Pool-Eco-mode] link.

- 6** Click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

## 5.2 RAID Management

Under RAID setting, ETERNUS DX400/DX8000 series RAID groups and Logical Volumes are setup.

The following can be set on this screen.

- Create RAID Group
- Rename RAID Group
- Change Controlling CM of RAID Group
- Logical Device Expansion
- Delete RAID Group
- Create Logical Volume
- Set Snap Data Pool
- Rename Logical Volume
- Convert Encryption Volume
- Format Logical Volume
- Initialize Snap Data Volume
- RAID Migration
- Progress of RAID Migration
- LUN Concatenation
- Delete Logical Volume
- Create Hot Spare
- Delete Hot Spare

### Caution



- To use encryption, set the encryption mode using the [Set Encryption Mode] menu. The following menu is not available until the encryption mode has been set:
  - Convert Encryption Volume
- To use Advanced Copy, register the Advanced Copy license using the [Register Advanced Copy License] menu. The following menus are not available until the Advanced Copy license has been registered:
  - Set Snap Data Pool
  - Initialize Snap Data Volume

## 5.2.1 Create RAID Group

This function creates a RAID Group without stopping ETERNUS DX400/DX8000 series operations.

Although RAID Groups have already been set at the time of shipping, the RAID Groups must be created when settings are changed and/or disk drives are expanded. The created contents can be checked using the [RAID Group List] function.

- The maximum number of RAID groups for each model

Model	The maximum number of RAID groups (*1)
ETERNUS DX410	105
ETERNUS DX440	210
ETERNUS DX8100	29
ETERNUS DX8400	502
ETERNUS DX8700	1364

\*1: This indicates the number of RAID groups when all of the RAID levels are defined as "RAID1". In a GlobalServer system, the number of RAID groups that can create volumes may be limited by disk capacity and Logical Volume type (G/H/K).

### Caution



- Only data disk(s) which do not belong to any RAID Group can be selected for a new RAID Group.
- All disk drives selected for a RAID Group must be the same capacity. If disk drives of different capacities exist in a RAID Group, the smallest becomes the standard, and all other disks are regarded as the same capacity as the smallest disk drive. In this case, the remaining disk space will NOT be used.
- A mixture of Fibre Channel disk drives and Nearline SATA disk drives cannot be used in a single RAID group.
- A mixture of Fibre Channel disk drives and SSDs cannot be used in a single RAID group.
- A mixture of Nearline SATA disk drives and SSDs cannot be used in a single RAID group.
- Adding RAID Groups in the Thin Provisioning Pool cannot be performed from the [Create RAID Group] function. Use the [Create/Extend Thin Provisioning Pool] function to expand the Thin Provisioning Pool capacity.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Resource Domains that can be assigned to the RAID Group differ depending on the current user account.
  - When logged on using a Total Administrator account, RAID Groups can be assigned to all the Resource Domains.
  - When logged on using a Resource Domain Administrator account, the RAID Groups can be assigned only to the relevant Resource Domain.



Note

Create volumes using the [Create Logical Volume] function after creating a RAID Group.

This section explains procedures to create RAID Groups.

## Procedure

- 1 Click [Create RAID Group] under the RAID Management in the [Configuration] menu.

→ The [Create RAID Group (Initial)] screen appears.

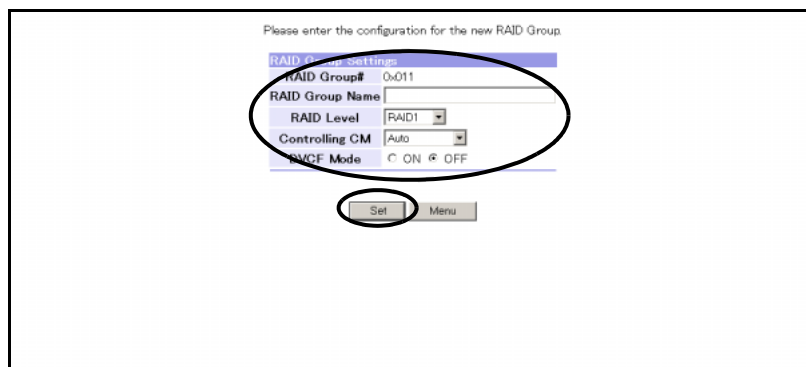
### Caution



In the following cases, a RAID Group cannot be created. When a message to that effect is displayed, return to the [Menu] screen by clicking the [OK] button.

- When there is no disk to configure a RAID Group.
- When the number of existing RAID Groups has already reached the maximum number that can be created.

- 2 Select the information of the RAID Group to be created, and click the [Set] button.



Refer to ["A.10.1 Create RAID Group \(Initial\) Screen" \(page 716\)](#) for details about setting items.

Specify the following items.

- RAID Group Name  
Input a name for the RAID Group to be created.
- RAID Level  
Select RAID Level for the RAID Group to be created.
- Resource Domain  
Select the Resource Domain for the RAID Group to be created.  
The "Resource Domain" item is displayed when logged on the ETERNUS DX400/ DX8000 series, in which the Resource Domains have been registered, using a Total Administrator account.
- Controlling CM  
Select the Controlling CM-CPU for the RAID Group to be created.

- **DVCF Mode**  
Sets DVCF Mode.  
DVCF mode is displayed as a setting item only when GS license is registered. This setting is enabled only when the RAID level is RAID1.

→ The [Create RAID Group (Select Disk)] screen appears.

Depending on the RAID level, supported RAID configuration varies.

- **Supported RAID Group configuration**
  - For ETERNUS DX410/DX440

RAID Level	Support		Number of configuration disks
	Open system server	GlobalServer	
RAID0	OK	–	2 to 16
RAID1	OK	–	1+1
RAID1+0	OK	–	Even numbers only 2+2 to 16+16
RAID5	OK	–	2+1 to 15+1
RAID6	OK	–	3+2 to 14+2

OK: Supported

–: Excluded

- For ETERNUS DX8100/DX8400/DX8700

RAID Level	Support		Number of configuration disks
	Open system server	GlobalServer	
RAID0	OK	NO	2 to 16
RAID1	OK	OK	1+1
RAID1+0	OK	NO	Even numbers only 2+2 to 16+16
RAID5	OK	NO	3+1 or 7+1
RAID6	OK	NO	6+2 or 14+2

OK: Supported

NO: Not supported

### Caution

- RAID0 has no data redundancy. RAID1, RAID1+0, RAID5, or RAID6 are recommended selections for the RAID level.
- When setting the RAID level other than RAID1, set the DVCF [OFF].
- When the [Set] button is clicked in the following conditions, an error screen appears.
  - When the RAID level is a level other than RAID1, and the DVCF is [ON]
  - When configuring RAID1 with 300GB or larger disks, and DVCF is [ON]
  - When inputting characters other than ASCII code (0x20 – 0x7E) for RAID Group Name
  - When inputting the existing RAID Group name

- 3 Select all the disks to be created in the RAID Group, and click the [Set] button.  
 Click the [Move] button to display the Expansion Rack screen. Select the Expansion Rack disks using the same procedure as for the Base Rack.

Please select the disk(s) to be assigned to the new RAID Group.

Base Rack

DEs that contain disks that can be assigned to a RAID Group

DE Mounting Position Display

Base Rack Expansion Rack#1 Expansion Rack#2 Expansion Rack#3 Expansion Rack#4 Expansion Rack#5

Current Rack : Base Rack

DE#04			DE#05			DE#06			DE#07		
Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity
0E	750 GB(S)	750 GB(S)	0E	750 GB(S)	750 GB(S)	0E	750 GB(S)	750 GB(S)	0E	750 GB(S)	750 GB(S)
0D	750 GB(S)	750 GB(S)	0D	750 GB(S)	750 GB(S)	0D	750 GB(S)	750 GB(S)	0D	750 GB(S)	750 GB(S)
0C	750 GB(S)	750 GB(S)	0C	750 GB(S)	750 GB(S)	0C	750 GB(S)	750 GB(S)	0C	750 GB(S)	750 GB(S)
0B	750 GB(S)	750 GB(S)	0B	750 GB(S)	750 GB(S)	0B	750 GB(S)	750 GB(S)	0B	750 GB(S)	750 GB(S)
0A	750 GB(S)	750 GB(S)	0A	750 GB(S)	750 GB(S)	0A	750 GB(S)	750 GB(S)	0A	750 GB(S)	750 GB(S)
09	750 GB(S)	750 GB(S)	09	750 GB(S)	750 GB(S)	09	750 GB(S)	750 GB(S)	09	750 GB(S)	750 GB(S)
08	750 GB(S)	750 GB(S)	08	750 GB(S)	750 GB(S)	08	750 GB(S)	750 GB(S)	08	750 GB(S)	750 GB(S)
07	300 GB(S)	300 GB(S)	07	300 GB(S)	300 GB(S)	07	300 GB(S)	300 GB(S)	07	300 GB(S)	300 GB(S)
06	300 GB(S)	300 GB(S)	06	300 GB(S)	300 GB(S)	06	300 GB(S)	300 GB(S)	06	300 GB(S)	300 GB(S)
05	300 GB(S)	300 GB(S)	05	300 GB(S)	300 GB(S)	05	300 GB(S)	300 GB(S)	05	300 GB(S)	300 GB(S)
04	300 GB(S)	300 GB(S)	04	300 GB(S)	300 GB(S)	04	300 GB(S)	300 GB(S)	04	300 GB(S)	300 GB(S)
03	300 GB(S)	300 GB(S)	03	300 GB(S)	300 GB(S)	03	300 GB(S)	300 GB(S)	03	300 GB(S)	300 GB(S)
02	300 GB(S)	300 GB(S)	02	300 GB(S)	300 GB(S)	02	300 GB(S)	300 GB(S)	02	300 GB(S)	300 GB(S)
01	300 GB(S)	300 GB(S)	01	300 GB(S)	300 GB(S)	01	300 GB(S)	300 GB(S)	01	300 GB(S)	300 GB(S)
00	300 GB(S)	300 GB(S)	00	300 GB(S)	300 GB(S)	00	300 GB(S)	300 GB(S)	00	300 GB(S)	300 GB(S)

DE#00			DE#01			DE#02			DE#03		
Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity
0E	750 GB(S)	750 GB(S)	0E	750 GB(S)	750 GB(S)	0E	750 GB(S)	750 GB(S)	0E	750 GB(S)	750 GB(S)
0D	300 GB	300 GB	0D	300 GB	300 GB	0D	300 GB	300 GB	0D	300 GB	300 GB
0C	300 GB	300 GB	0C	300 GB	300 GB	0C	300 GB	300 GB	0C	300 GB	300 GB
0B	300 GB	300 GB	0B	300 GB	300 GB	0B	300 GB	300 GB	0B	300 GB	300 GB
0A	300 GB	300 GB	0A	300 GB	300 GB	0A	300 GB	300 GB	0A	300 GB	300 GB
09	300 GB	300 GB	09	300 GB	300 GB	09	300 GB	300 GB	09	300 GB	300 GB
08	300 GB	300 GB	08	300 GB	300 GB	08	300 GB	300 GB	08	300 GB	300 GB
07	300 GB	300 GB	07	300 GB	300 GB	07	300 GB	300 GB	07	300 GB	300 GB
06	300 GB	300 GB	06	300 GB	300 GB	06	300 GB	300 GB	06	300 GB	300 GB
05	300 GB	300 GB	05	300 GB	300 GB	05	300 GB	300 GB	05	300 GB	300 GB
04	300 GB	300 GB	04	300 GB	300 GB	04	300 GB	300 GB	04	300 GB	300 GB
03	73 GB	73 GB	03	73 GB	73 GB	03	73 GB	73 GB	03	73 GB	73 GB
02	73 GB	73 GB	02	73 GB	73 GB	02	73 GB	73 GB	02	73 GB	73 GB
01	73 GB	73 GB	01	73 GB	73 GB	01	73 GB	73 GB	01	73 GB	73 GB
00	73 GB	73 GB	00	73 GB	73 GB	00	73 GB	73 GB	00	73 GB	73 GB

→ The [Create RAID Group (Check Setting)] screen appears.

Depending on the RAID level, restrictions of disk layout vary.  
Check the following and select the disks.

### Restrictions of disk layout

RAID Level		Number of disks	Selection Conditions
RAID0		2 to 16	-
RAID1	RAID1(1+1)	2	Mirroring should NOT be by disk drives in the same FC-Loop (*1).
RAID1+0	RAID1+0(2+2) to RAID1+0(16+16)	Even numbers from 4 to 32	Mirroring should NOT be by disk drives in the same FC-Loop (*1).
RAID5 (ETERNUS DX410/DX440)	RAID5(2+1) to RAID5(15+1)	3 to 16	-
RAID5 (ETERNUS DX8100)	RAID5(3+1) or RAID5(7+1)	4 or 8	-
RAID5 (ETERNUS DX8400/DX8700)	RAID5(3+1)	4	<ul style="list-style-type: none"> <li>Disk drives containing RAID5 should not be used in the same FC-Loop (*1).</li> <li>Configure RAID5 using disk drives in the pair BRT (Back-end Router). (*2)</li> </ul>
	RAID5(7+1)	8	Disk drives containing RAID5 should not be used in the same FC-Loop (*1).
RAID6 (ETERNUS DX410/DX440)	RAID6(3+2) to RAID6(14+2)	5 to 16	-
RAID6 (ETERNUS DX8100)	RAID6(6+2) or RAID6(14+2)	8 or 16	-
RAID6 (ETERNUS DX8400/DX8700)	RAID6(6+2) or RAID6(14+2)	8 or 16	Each FC-Loop should contain no more than three disk drives from any given RAID6 group (*1).

\*1: The FC-Loop number is represented as the lower 5 bits of the DE-ID (DE#xx). Disk drives in the same FC-Loop mean the disk drives installed in the DEs whose FC-Loop numbers are the same.

The same FC-Loop: DE#0x, DE#2x, DE#4x, DE#6x  
DE#1x, DE#3x, DE#5x, DE#7x

(Example) DE#00, DE#20, DE#40, and DE#60 are DEs in the same FC-Loop.

(Example) DE#11, DE#31, DE#51, and DE#71 are DEs in the same FC-Loop.

\*2: Pair BRT are BRT#0/BRT#1, BRT#2/BRT#3, BRT#4/BRT#5, BRT#6/BRT#7, used as sets. The disk drives in the pair BRTs are the disk drives installed in the DEs which are connected to the paired BRT and to the cascade connected DEs. These DEs can be recognized by the lower 4 bits of the DE-ID (DE#xx).

- DEs under pair BRT (BRT#0/BRT#1): DE#x0, DE#x1, DE#x2, DE#x3 (All x = 0 – 7)
- DEs under pair BRT (BRT#2/BRT#3): DE#x4, DE#x5, DE#x6, DE#x7 (All x = 0 – 7)
- DEs under pair BRT (BRT#4/BRT#5): DE#x8, DE#x9, DE#xA, DE#xB (All x = 0 – 7)
- DEs under pair BRT (BRT#6/BRT#7): DE#xC, DE#xD, DE#xE, DE#xF (All x = 0 – 7)

(Example) DEs under pair BRT (BRT#0/BRT#1) are as follows:

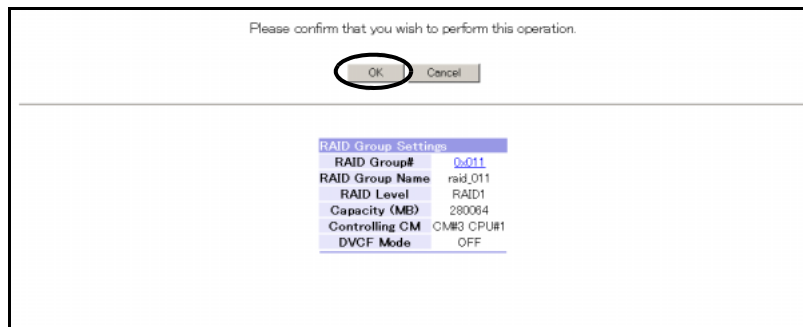
DE#00, DE#01, DE#02, DE#03  
DE#10, DE#11, DE#12, DE#13  
DE#20, DE#21, DE#22, DE#23  
DE#30, DE#31, DE#32, DE#33  
DE#40, DE#41, DE#42, DE#43  
DE#50, DE#51, DE#52, DE#53  
DE#60, DE#61, DE#62, DE#63  
DE#70, DE#71, DE#72, DE#73

### Caution



- Disks can be selected in the following cases.
  - No longer assigned to a RAID group (\*1)
  - Disk status is PRESENT (\*2)
  - Not registered as a REC Disk Buffer
- \*1: The RAID group where the disk was registered has been deleted.
- \*2: The disk has been installed, but it is not being used (has not been assigned to a RAID Group or a hot spare disk yet). On the Device Status display, this disk status is shown as a "Blue LED".
- When creating a RAID Group, all disks to be used in the RAID Group must be the same capacity. If disks of different capacities exist in a RAID Group, the smallest becomes the standard, and all other disks are regarded as the same capacity as the smallest disk. In this case, the remaining disk space will NOT be used.
- In the following cases, an input error screen appears.
  - When selecting 33 or more disks
  - When attempting to create DVCF Mode ON RAID1 using a disk more than 300GB.
  - When selecting disks other than the specified number of configuration disks for each RAID level.  
For supported RAID Group configurations of each RAID level, refer to ["Supported RAID Group configuration" \(page 146\)](#).
  - When the Loop where the selected disk belongs does not meet conditions for each RAID level.  
For the disk layout restrictions for each RAID level, refer to ["Restrictions of disk layout" \(page 148\)](#).

4 Click the [OK] button.

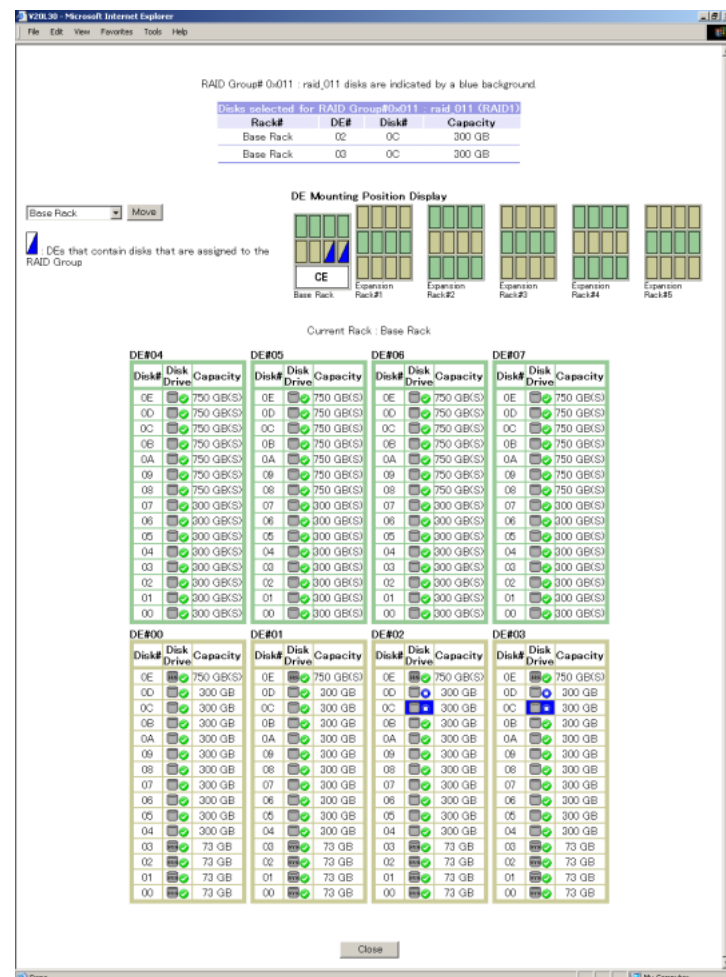


→ The [Create RAID Group (Updating Configuration Information)] screen appears.  
When the process is successfully completed, the [Create RAID Group (Result)] screen appears.



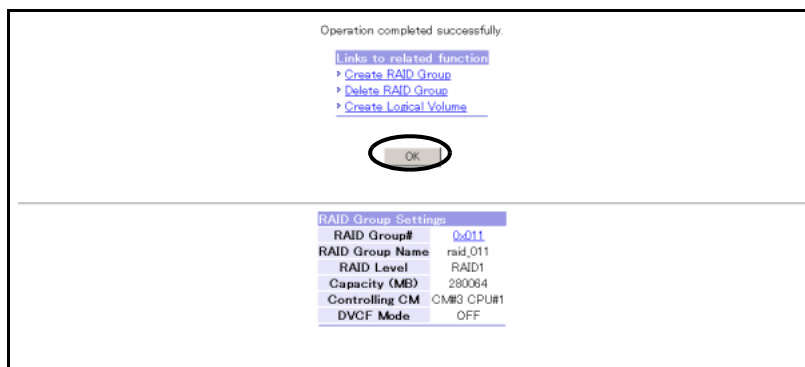
Note

To confirm the DEs and disks to configure, click the [RAID Group#] link.



When the RAID Group name is specified, the [Create RAID Group (Setting RAID Group Name)] screen appears after the [Create RAID Group (Updating Configuration Information)] screen.

**5** Click the [OK] button.



→ Returns to the [Menu] screen.



**Note**

- When changing the controlling CM-CPU after RAID Groups have been created, use the [Change Controlling CM of RAID Group] menu.
- The [Delete RAID Group] link is displayed when the user account which is currently accessing the ETERNUSmgr supports the [Delete RAID Group] function.

**End of procedure**

## 5.2.2 Rename RAID Group

This function changes the RAID Group name without stopping the ETERNUS DX400/DX8000 series. Also, this function can rename multiple RAID Groups at the same time.

**Caution**



When Resource Domains are registered in the ETERNUS DX400/DX8000 series, RAID Groups that can be renamed differ depending on the current user account.

- When logged on using a Total Administrator account, all the RAID Groups that are assigned to Resource Domains can be renamed.
- When logged on using a Resource Domain Administrator account, only the RAID Groups that are assigned to the relevant Resource Domain, and only the RAID Groups that are assigned to the Shared Resource, can be renamed.

The procedure to change RAID Group name is described below.

## Procedure

- 1 Click [Rename RAID Group] under the RAID Management (or Thin Provisioning Management ) in the [Configuration] menu.  
→ The [Rename RAID Group (Change)] screen appears.

### Caution



When there are no RAID Groups in the ETERNUS DX400/DX8000 series, the RAID Group name cannot be changed. When a message to that effect is displayed, click the [OK] button to return to the [Menu] screen.

- 2 Enter the new RAID Group name in the "Name" text box for the target RAID Group, and click the [Set] button.

No.	RAID Group Name	RAID Level	Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No.	Name
0x000	raid_000	RAID5	Available	CM#0-CPU#0	149504	-	Open, SDV, SDPV	-	-
0x001	raid_001	RAID1	Available	CM#1-CPU#0	149504	-	Open, SDPV	-	-
0x002	raid_002	RAID1+0	Available	CM#0-CPU#1	1046528	-	Open	-	-
0x003	raid_003	RAID1+0	Available	CM#1-CPU#1	971776	-	-	-	-
0x004	raid_004	RAID1+0	Copyback	CM#0-CPU#0	1121280	-	Open	-	-
0x005	raid_005	RAID1	Available	CM#1-CPU#0	1943552	-	Open, SDV	-	-
0x006	raid_006	RAID5	Available	CM#0-CPU#1	598016	-	SDV	-	-
0x007	raid_007	RAID1+0	Available	CM#1-CPU#1	1196032	-	Open	-	-
0x008	raid_008	RAID1+0	Available	CM#0-CPU#0	3360768	-	-	-	-
0x20D	-	RAID5	Available	CM#0-CPU#0	149504	-	TMP	-	-

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[Set] [Menu]

→ The [Rename RAID Group (Check)] screen appears.

### Caution

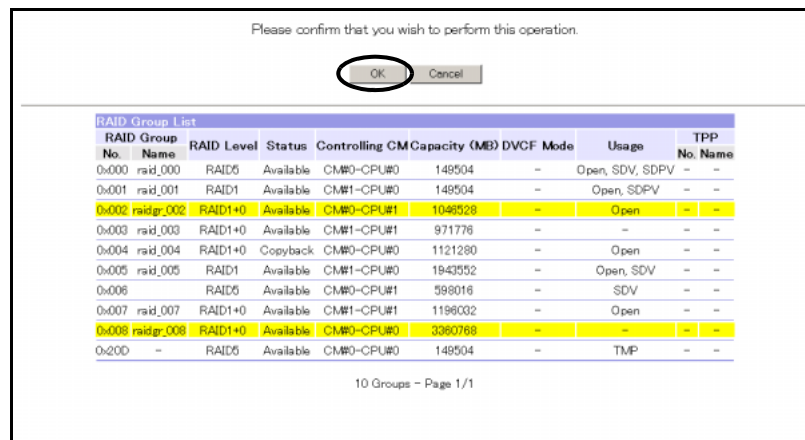


If clicking the [Jump to Page], [Next], [Prev], or [Set] button in the following conditions, an error screen appears. This function performs the error checking for each page of the RAID Group List. RAID Groups to be renamed are displayed with a yellow background.

- When entering characters other than ASCII code (0x20 – 0x7E)
- When entering the existing RAID Group name

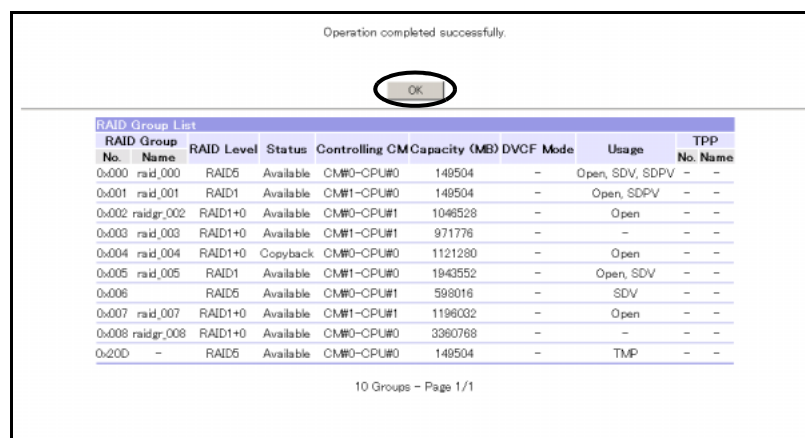
**3** Click the [OK] button.

RAID Groups to be renamed are displayed with a yellow background.



→ When the [Rename RAID Group (Updating Configuration Information)] screen appears and the operation completes successfully, the [Rename RAID Group (Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 5.2.3 Change Controlling CM of RAID Group

This function changes the CM assigned to the RAID Group created in the device, without stopping the device.

When the load is not balanced between CMs, changing the controlling CM enables distribution of the load.

**Caution**



- In the following cases, the controlling CM cannot be changed.
  - When the Bind in Cache memory is already specified
  - When no RAID Group is registered in the ETERNUS DX400/DX8000 series
  - When LDE is in progress
  - When there is Pinned data
  - When RAID Migration is in progress
  - When balancing TPV is in progress
  - When a REC Buffer whose usage is not "Unused" is registered
- Controlling CM for the RAID group in the following status cannot be changed.
  - When the RAID group status is not "Available"
  - When the RAID group is blocked
  - When there is a volume that is being encrypted
  - When there is a volume that is being formatted
- While the controlling CM is being changed, the device mode changes from "Write Back" to "Write Through". When using the [Change Controlling CM of RAID Group] menu, be sure to consider the workload.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the RAID Groups that can change the controlling CM differ depending on the current user account.
  - When logged on using a Total Administrator account, controlling CMs of all the RAID Groups that are assigned to Resource Domains can be changed.
  - When logged on using a Resource Domain Administrator account, only the controlling CM for RAID Groups that are assigned to the relevant Resource Domain, and only the controlling CM for RAID Groups that are assigned to the Shared Resource, can be changed.

This section describes procedures to change controlling CMs for RAID Groups.

## Procedure

- 1** Click [Change Controlling CM of RAID Group] under the RAID Management (or Thin Provisioning Management) in the [Configuration] menu.  
→ The [Change Controlling CM of RAID Group (Initial)] screen appears.
- 2** Select the change setting mode as either [Automatic Allocation] or [Individual Selection], and click the [Set] button.

- When [Automatic Allocation] is selected:

If [Automatic Allocation] is selected, the controlling CM-CPU is changed automatically. All the RAID Groups are targets for [Automatic Allocation]. It is not necessary to select the controlling CM-CPU for each RAID Group from the list box. [Automatic Allocation] assigns the same CM-CPU as when "Auto" is specified for the controlling CM-CPU in [Create RAID Group] menu. Refer to ["5.2.1 Create RAID Group" \(page 144\)](#) for details.

■ When [Individual Selection] is selected:

Change the controlling CM-CPU manually. Select the controlling CM-CPU to change from the list box.

**CAUTION**  
 > When the format is executed or it is not normal, control CM cannot be changed

Automatic Allocation ☒ Individual Selection

RAID Group No.	Name	RAID Level	Status	Controlling CM	Capacity (MB)	Usage	TPP No.	TPP Name
0x000 raid_000		RAID5	Available	CM00-CPU00	148504	Open, SDV, SDPV	-	-
0x001 raid_001		RAID1	Available	CM03-CPU01	148504	Open, SDPV	-	-
0x002 raid_002		RAID1+0	Available	CM01-CPU00	1048528	Open	-	-
0x003 raid_003		RAID1+0	Available	CM02-CPU01	971776	-	-	-
0x004 raid_004		RAID1+0	Available	CM02-CPU00	1121280	Open	-	-
0x005 raid_005		RAID1	Available	CM01-CPU01	1943552	Open, SDV	-	-
0x006 raid_006		RAID5	Available	CM03-CPU00	598016	SDV	-	-
0x007 raid_007		RAID1+0	Available	CM00-CPU01	1196032	Open	-	-
0x008 raid_008		RAID1+0	Available	CM00-CPU00	3380768	-	-	-
0x009 raid_009		RAID1+0	Available	CM03-CPU01	3380768	-	-	-

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 Jump to Page Next

Set Menu

→ The [Change Controlling CM of RAID Group (Check Setting)] screen appears.

**Caution**

- When logged on using a Resource Domain Administrator account, [Automatic Allocation] and [Individual Selection] are not displayed. Perform the same operation as selecting the [Individual Selection].
- When the [Set] button is clicked in the following conditions, an error screen appears.
  - When [Individual Selection] has been selected and controlling CM-CPU is not changed.
  - When [Automatic Allocation] has been selected and there are no RAID groups to change the controlling CM-CPU.
  - When [Automatic Allocation] has been selected and there are RAID groups in the ETERNUS DX400/DX8000 series for which the controlling CM-CPU can not be changed (such as a RAID group that is not in normal status).

**3** Click the [OK] button.

Please confirm that you wish to perform this operation.

RAID Group List							
RAID Group No.	Name	RAID Level	Status	Controlling CM	Capacity (MB)	Usage	TPP No. Name
0x001 raid_001		RAID1	Available	CM#1-CPU#0	148504	Open, SDPV	- -
0x002 raid_002		RAID1+0	Available	CM#2-CPU#0	1048528	Open	- -
0x003 raid_003		RAID1+0	Available	CM#3-CPU#0	971776	-	- -

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→ The [Change Controlling CM of RAID Group (Updating Configuration Information)] screen appears.

When the update is completed, the [Change Controlling CM of RAID Group (Setting Result)] screen appears.

**4** Click the [OK] button.

Operation completed successfully.

RAID Group List							
RAID Group No.	Name	RAID Level	Status	Controlling CM	Capacity (MB)	Usage	TPP No. Name
0x000 raid_000		RAID5	Available	CM#0-CPU#0	148504	Open, SDV, SDPV	- -
0x001 raid_001		RAID1	Available	CM#1-CPU#0	148504	Open, SDPV	- -
0x002 raid_002		RAID1+0	Available	CM#2-CPU#0	1048528	Open	- -
0x003 raid_003		RAID1+0	Available	CM#3-CPU#0	971776	-	- -
0x004 raid_004		RAID1+0	Available	CM#2-CPU#0	1121280	Open	- -
0x005 raid_005		RAID1	Available	CM#1-CPU#1	1943552	Open, SDV	- -
0x006 raid_006		RAID5	Available	CM#3-CPU#0	598016	SDV	- -
0x007 raid_007		RAID1+0	Available	CM#0-CPU#1	1198032	Open	- -
0x008 raid_008		RAID1+0	Available	CM#0-CPU#0	3360768	-	- -
0x009 raid_009		RAID1+0	Available	CM#3-CPU#1	3360768	-	- -

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→ Returns to the [Menu] screen.

End of procedure

## 5.2.4 Logical Device Expansion

Logical Device Expansion (LDE) is a function that is able to dynamically increase the capacity of a RAID group by adding disks to it and/or changing its RAID level.

Normally, volume expansion requires that the RAID group itself be expanded, requiring the installation (use) of multiple disks. However, because LDE can be used to add even single disks to an existing RAID group, the RAID group capacity can be expanded by a smaller number of disks than normal. LDE also allows use of the data in the existing RAID group to continue as normal.

## ■ Logical Device Expansion RAID Group Requirements

- RAID group [Status] must be [Available].
- RAID group must satisfy either of the following:
  - At least one Open Volume, Snap Data Volume, or Snap Data Pool Volume registered.
  - Absolutely no volumes registered.
  - Not registered in the Thin Provisioning Pool.
  - Not registered as a REC Disk Buffer.
- RAID group must not be blocked.
- Component volumes may not be in the process of being formatted.
- Component volumes may not be in the process of being encrypted.

### Caution



- Before performing the LDE, be sure to back up all data from the Logical Volumes of the target RAID group to safe areas on unaffected volumes (as the original data will not be recoverable if the LDE fails). If the LDE fails, restore from the backed up data.
- When adding a disk drive, be sure it has the same capacity as the other disk drives in the LDE target RAID group. If different capacity disk drives are used, then post-LDE all the disk drives will have a usable capacity the same size as that of the smallest disk drive in the RAID group, with the excess capacity in any larger disk drives not usable.
- When adding a disk drive, be sure to use the disk drive which is the same type as the other disk drives in the LDE target RAID group.
- LDE cannot be performed if it will decrease the RAID group capacity.
- LDE cannot be performed if the RAID Group is registered in the Thin Provisioning Pool.
- LDE cannot be performed if the RAID Group is registered as a REC Disk Buffer.
- Running LDE on a RAID group will prevent the following operations from being executed on component disks/volumes:
  - Volume format
  - Volume creation
  - Volume encryption
  - RAID Migration of volumes
  - LUN concatenation of volumes
  - Disk preventive maintenance
  - Disk diagnosis
  - RAID group diagnosis
  - Assigning to Resource Domain

- When Resource Domains are registered in the ETERNUS DX400/ DX8000 series, the RAID Groups for which LDE can be performed differ depending on the current user account.
  - When logged on using a Total Administrator account, LDE can be performed for all the RAID Groups that are assigned to Resource Domains.
  - When logged on using a Resource Domain Administrator account, LDE can be performed only for the RAID Groups that are assigned to the relevant Resource Domain, and only for the RAID Groups that are assigned to the Shared Resource.



**Note**

When the capacity of the individual RAID group disk drives needs to be increased, "RAID Migration" should be used instead of "LDE".

The following describes procedures to execute Logical Device Expansion.

### Procedure

- 1 Click [Logical Device Expansion] under the RAID Management in the [Configuration] menu.  
→ The [Logical Device Expansion (Initial)] screen appears.

**Caution**



If there is at least one of the following, a message to that effect is displayed, and LDE cannot be executed.

- When there is no RAID Group that LDE can be executed on.
- When there is a RAID Group where LDE has already been running.
- When there is an abnormal component in the CE.
- When the device is operating in Write Through Mode.

- 2 Select the radio button of the RAID Group in which LDE is to be executed, and click the [Set] button.

The radio button is displayed only on the RAID Group where LDE can be executed.

RAID Group List								
RAID Group No.	Name	RAID Level	Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No. Name
0-000	raid_000	RAID5	Available	CM#0-CPU#0	149504	-	Open, SDV, SDPV	-
0-001	raid_001	RAID1	Available	CM#3-CPU#1	149504	OFF	Mainframe	-
0-002	raid_002	RAID1+0	Available	CM#1-CPU#0	1046528	-	M/V	-
0-003	raid_003	RAID1+0	Available	CM#2-CPU#1	971776	-	Mainframe, M/V	-
0-004	raid_004	RAID1+0	Available	CM#2-CPU#0	1121280	-	Open	-
0-005	raid_005	RAID1	Available	CM#1-CPU#1	1943552	-	Open, SDV	-
0-006	raid_006	RAID5	Available	CM#3-CPU#0	598016	-	SDV	-
0-007	raid_007	RAID1+0	Rebuild Progress	CM#0-CPU#1	1196032	-	Open	-
0-008	raid_008	RAID1+0	Available	CM#0-CPU#0	3380768	-	-	-
0-00A	raid_00A	RAID5	Available	CM#1-CPU#0	840192	-	Open	-

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Jump to Page Next

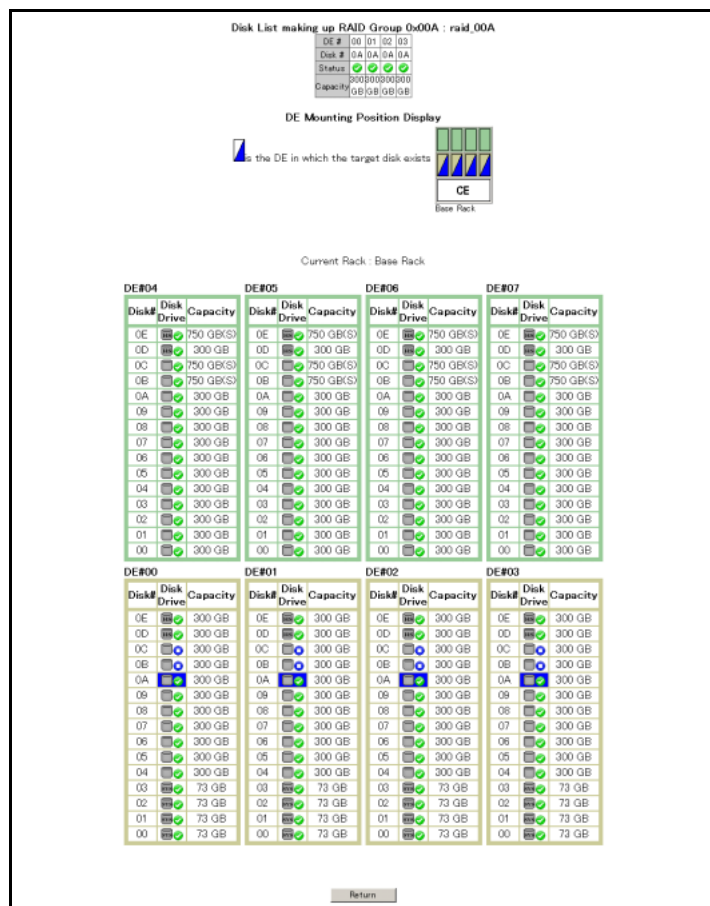
Set Refresh Menu

→ The [Logical Device Expansion (Select RAID Level)] screen appears.

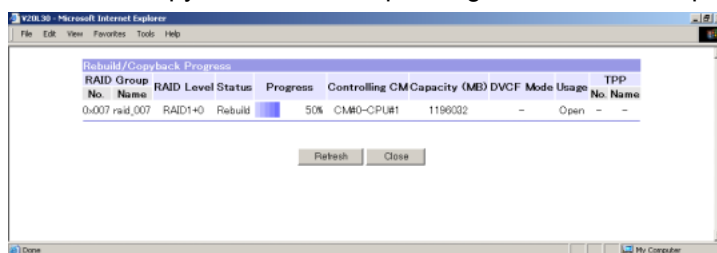


Note

- When the [RAID Group No.] link is clicked, the installation diagram of the disks which configure the RAID Group can be confirmed.



- Clicking the [Progress] link in [Status] displays the progress of the Rebuild or Copy back which is operating in the RAID Group.



- Click the [Usage] link to check space usage status of the RAID Group.

RAID Group# 0x00A raid_00A						
Logical Volume		Status	Volume Type	Encryption	Capacity (MB)	
Mainframe#	Open# Name					
-	0x00A0 vol_00A0	Available	Open	-	1024	
-	0x00A1 vol_00A1	Available	Open	-	1024	
-	0x00A2 vol_00A2	Available	Open	-	2000	
Free		-	-	-	-	526144

Refresh Return

### 3 Select the RAID level to set, and click the [Set] button.

Please specify the desired RAID Level after the Expansion.

RAID Group#	0x00A
RAID Group Name	raid_00A
RAID Level	RAID6

Set Return

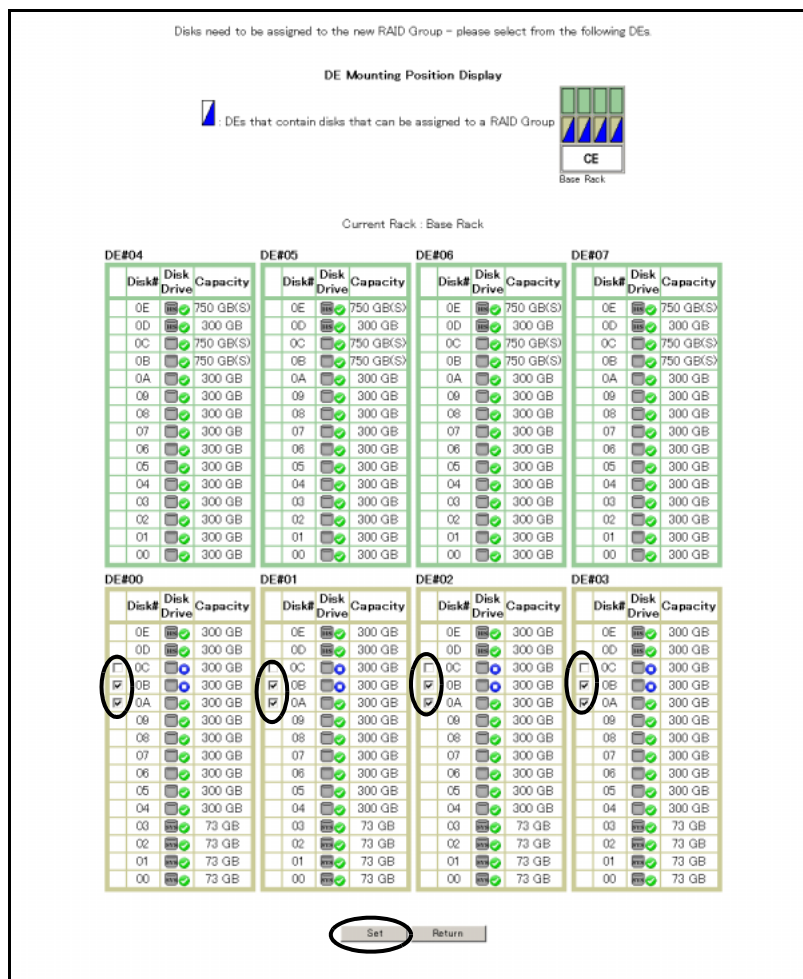
→ The [Logical Device Expansion (Select Disk)] screen appears.

#### Caution



"Controlling CM" cannot be changed with this function.

- 4** When adding disks to the RAID Group, select the checkboxes of the disks that are to be used, and click the [Set] button.  
 To remove disks from the RAID Group, deselect the checkboxes of the disks that are no longer required, and click the [Set] button.  
 Only disks that can be used will have checkboxes.  
 Only blue LED disks(\*1) can be added, and only green LED disks(\*2) can be deleted.  
 \*1: Disk not currently assigned to any RAID Group or REC Disk Buffer.  
 \*2: Disk assigned to the RAID Group before the LDE.  
 Click the [Move] button to display the Expansion Rack screen. Select the Expansion Rack disks using the same procedure as for the Base Rack



→ The [Logical Device Expansion (Setting Check)] screen appears.  
 Check the following when select the disks.

■ The number of selected disks for each RAID Level

RAID Level	Range of the number of disks
RAID0	2 to 16
RAID1	1+1
RAID1+0	2+2 to 16+16
RAID5 (ETERNUS DX400 series)	2+1 to 15+1
RAID5 (ETERNUS DX8000 series)	3+1 or 7+1
RAID6 (ETERNUS DX400 series)	3+2 to 14+2
RAID6 (ETERNUS DX8000 series)	6+2 or 14+2

■ Restrictions of disk layout

RAID Level	Disk layout requirements
RAID0	No requirements
RAID1	Mirroring should NOT be in the same FC-Loop.
RAID1+0	Mirroring should NOT be in the same FC-Loop.
RAID5 (ETERNUS DX400 series)	No requirements
RAID5(3+1), RAID5(7+1) (ETERNUS DX8100)	No requirements
RAID5(3+1) (ETERNUS DX8400/DX8700)	<ul style="list-style-type: none"> <li>Member Disks should NOT be in the same FC-Loop.</li> <li>RAID group should be configured in the pair BRT.</li> </ul>
RAID5(7+1) (ETERNUS DX8400/DX8700)	Member Disks should NOT be in the same FC-Loop.
RAID6 (ETERNUS DX400 series)	No requirements
RAID6(6+2), RAID6(14+2) (ETERNUS DX8100)	No requirements
RAID6(6+2), RAID6(14+2) (ETERNUS DX8400/DX8700)	3 or more member disks should NOT be in the same FC-Loop.

■ Effect of RAID level on LDE disk selection requirements

Disk selection requirements depend on whether or not the RAID level is changed following the LDE.

Post-LDE RAID Level	Disk Selection Requirement
Unchanged (Same RAID level)	RAID group disks may NOT be deleted by the LDE (total number of RAID group disks cannot decrease).
Changed (Different RAID level)	<ul style="list-style-type: none"> <li>Number of RAID group data disks(*1) after the LDE may NOT be less than the number before the LDE.</li> <li>RAID group disks may be deleted by the LDE (however, ALL disks may not be deleted).</li> </ul>

\*1: "Number of data disks" indicates the number of logical disks in the RAID group that contain user data. Different for each RAID level, as follows:

- RAID1(1+1): → 1
- RAID1+0(n+n): → n
- RAID5(n+1): → n
- RAID6(n+2): → n

(Example 1) When changing to the same RAID level

- When changing from RAID1+0(6+6) to RAID1+0(3+3)  
Total number of disks:  $12 > 6$ , so LDE cannot be performed
- When changing from RAID1+0(6+6) to RAID1+0(8+8)  
Total number of disks:  $12 < 16$ , so LDE can be performed

(Example 2) When changing to a different RAID level

- When changing from RAID1+0(6+6) to RAID5(3+1)  
Number of data disks:  $6 > 3$ , so LDE cannot be performed (Total number of disks:  $12 \rightarrow 4$ )
- When changing from RAID1+0(6+6) to RAID6(6+2)  
Number of data disks:  $6 = 6$ , so LDE can be performed. (Total number of disks:  $12 \rightarrow 8$ )
- When changing from RAID1+0(6+6) to RAID5(7+1)  
Number of data disks:  $6 < 7$ , so LDE can be performed (Total number of disks:  $12 \rightarrow 8$ )

**Caution** 

In the following cases, an input error screen appears.

- When selecting 33 or more disks.
- When the configuration of the RAID Group to be created is abnormal  
Depending on the RAID level, range of the number of disks and restrictions of disk layout vary. For the range of the number of disks and disk layout restrictions, refer to ["The number of selected disks for each RAID Level" \(page 162\)](#) and ["Restrictions of disk layout" \(page 162\)](#).
- When the new RAID Group does not satisfy the conditions required to perform the LDE.  
These conditions depend on whether the RAID levels before and after the LDE are the same or not. For details, refer to ["Effect of RAID level on LDE disk selection requirements" \(page 162\)](#).
- When the capacity of the RAID Group to be created is smaller than that of the RAID Group before the LDE execution.
- The total capacity of the Logical Volumes defined in the RAID Group is larger than the capacity of the RAID Group to be created.
- When the configuration of the RAID Group to be created is the same as the configuration of the RAID Group before the LDE execution.

**5** Click the [OK] button to execute the process.

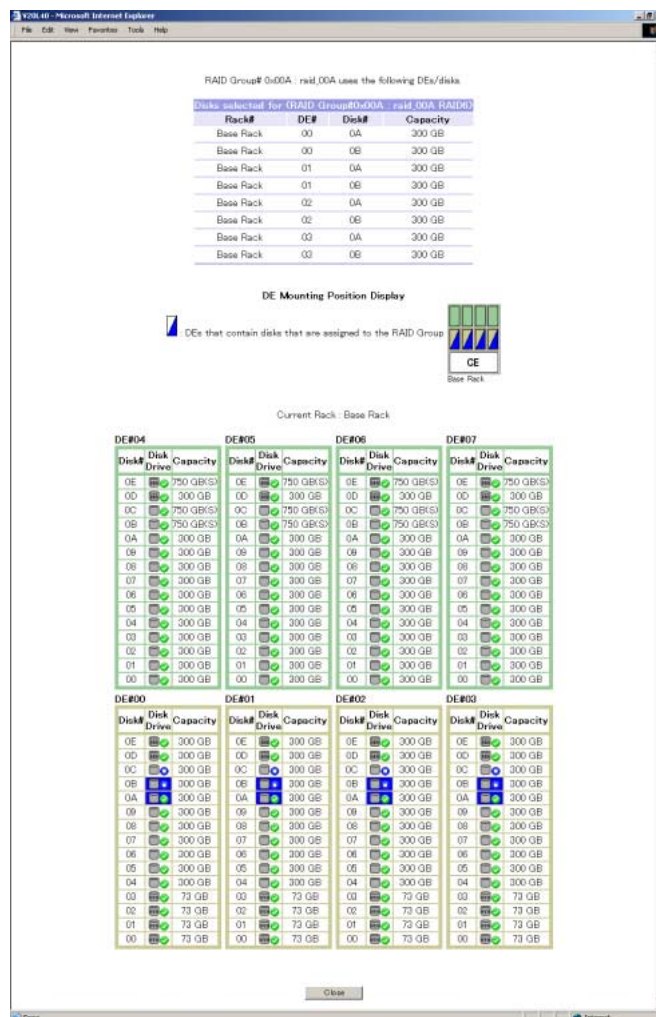


→ The [Logical Device Expansion (Updating Configuration Information)] screen appears. When the process is completed successfully, the [Logical Device Expansion (Result)] screen appears.



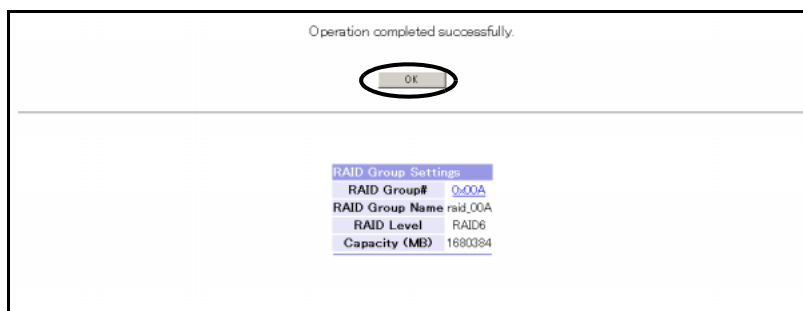
Note

Clicking the [RAID Group#] link displays the list of its component disks, allowing the RAID Group's installation configuration to be checked.



The disks used by the RAID Group are displayed with a blue background.

## 6 Click the [OK] button.



→ Returns to the [Menu] screen.



Note

Clicking the [RAID Group#] link displays the list of its component disks, allowing the RAID Group's installation configuration to be checked.

The disks used by the RAID Group are displayed with a blue background.

End of procedure

## 5.2.5 Delete RAID Group

This function deletes RAID Groups without stopping operations.

**Caution**



- RAID Groups which have volumes registered cannot be deleted. When deleting a RAID Group, delete the volumes beforehand. To delete volumes, use the [Delete Logical Volume] function. To delete Snap Data Pool volumes, use the [Set Snap Data Pool] function.
- RAID Groups registered in the Thin Provisioning Pool cannot be deleted.
- RAID Groups registered as REC Disk Buffers cannot be deleted.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the RAID Groups that can be deleted differ depending on the current user account.
  - When logged on using a Total Administrator account, all the RAID Groups that are assigned to Resource Domains can be deleted.
  - When logged on using a Resource Domain Administrator account, only the RAID Groups that are assigned to the relevant Resource Domain, and only the RAID Groups that are assigned to the Shared Resource, can be deleted.

This section explains procedures to delete RAID Groups.

### Procedure

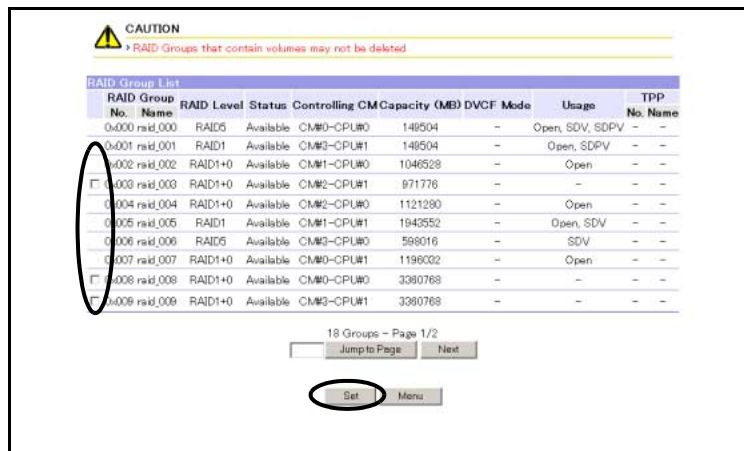
- 1 Click [Delete RAID Group] under the RAID Management in the [Configuration] menu.
  - The [Delete RAID Group (Initial)] screen appears.
  - Refer to ["A.3.1 RAID Group List \(Initial\) Screen" \(page 673\)](#) for screen details.

**Caution**



If there is no RAID Group to delete, RAID Group deletion cannot be executed. A message to that effect appears. Click the [OK] button to return to the [Menu] screen.

**2** Select the RAID Group to delete, and click the [Set] button.

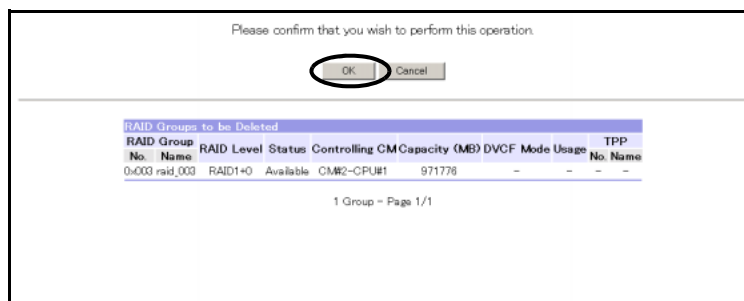


→ The [Delete RAID Group (Check)] screen appears.

**Caution**

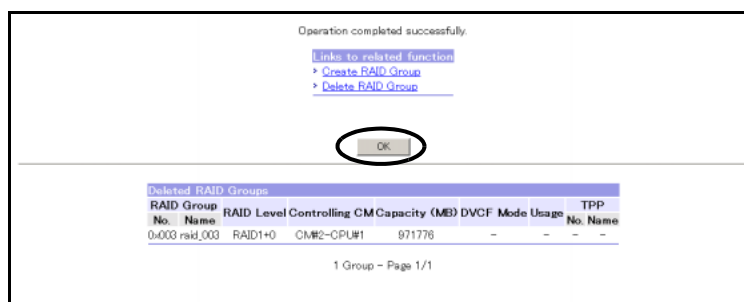
- RAID Groups which have volumes registered cannot be deleted.
- RAID Groups registered in the Thin Provisioning Pool cannot be deleted.
- RAID Groups registered as REC Disk Buffers cannot be deleted.
- If no checkbox is selected, an input error screen is displayed.

**3** Click the [OK] button.



→ The [Delete RAID Group (Updating Configuration Information)] screen appears. After the process is successfully completed, the [Delete RAID Group (Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.



**Note**

The [Create RAID Group] link is displayed only when logged on with a user account whose role supports the [Create RAID Group] function.

**End of procedure**

## 5.2.6 Create Logical Volume

This function creates a volume in a registered RAID Group or Thin Provisioning Pool without stopping ETERNUS DX400/DX8000 series operations.

Open Volumes, Mainframe Volumes, MVV Volumes, MVV Concatenated Volumes, and Snap Data Volumes (SDV) can be created in RAID Groups. Thin Provisioning Volumes can be created in Thin Provisioning Pools. When creating non-Thin Provisioning Volumes, volumes will be formatted automatically.

Once a volume is created in a RAID Group or a Thin Provisioning Pool and mapping is done, the volume becomes accessible from hosts.

■ The maximum number of volumes for each model

The following table shows the maximum number of volumes which can be created for each model.

Model	The maximum number of volumes	
	Open Volumes + Snap Data Volumes + Snap Data Pool Volumes (*1) + Thin Provisioning Volumes (*2)	Mainframe Volumes + MVV Volumes
ETERNUS DX410	2048	–
ETERNUS DX440	4096	–
ETERNUS DX8100	3712 (4096) (*3)	1024
ETERNUS DX8400	16384	8192
ETERNUS DX8700	16384	8192

–: Not supported

\*1: Snap Data Pool Volume (SDPV) is an expansion volume that is used when the Snap Data Volume capacity is insufficient.

\*2: Thin Provisioning Volume (TPV) is a volume created in the Thin Provisioning Pool.

\*3: The maximum number of volumes when creating Thin Provisioning Volumes. However, the actual number of volumes that can be created is less than the maximum value as specified by the Thin Provisioning function.

■ The supported volume types for each device type

The following table shows supported volume types for each device type.

Volume type	Device type	
	ETERNUS DX400 series	ETERNUS DX8000 series
Open, SDV, SDPV, TPV	OK	OK
Mainframe (F6427G, F6427H, F6427K)	–	OK
MVV (MVV (G), MVV (H), MVV (K))	–	OK

OK: Supported

–: Not supported

■ The maximum number of volumes for each RAID Group

The following table shows the maximum number of volumes that can be created in a given RAID Group, as determined by the types of volumes and disk drives involved.

● For Open Volumes:

Volume types	Disk drive type								
	200GB (SSD) (*1)	400GB (SSD) (*1)	300GB	450GB	600GB	500GB (S) (*2)	750GB (S) (*2)	1TB (S) (*2)	2TB (S) (*2)
Open + SDV + SDPV + TPV	128	128	128	128	128	128	128	128	128

\*1: "200GB (SSD)" and "400GB (SSD)" are Solid State Drives.

\*2: "500GB (S)", "750GB (S)", "1TB (S)", and "2TB (S)" are Nearline SATA disk drives.

● For Mainframe Volumes:

Volume types	Disk drive type						
	73GB (SSD) (*1)	146GB (SSD) (*1)	200GB (SSD) (*1)	36GB	73GB	146GB	300GB
Mainframe (F6427G) + MVV (G)	48	96	128	24	48	96	128
Mainframe (F6427H) + MVV (H)	32	64	101	16	32	64	128
Mainframe (F6427K) + MVV (K)	24	48	67	12	24	48	96

\*1: "73GB (SSD)", "146GB (SSD)", and "200GB (SSD)" are Solid State Drives.

## ■ RAID levels supported by volume type in a RAID Group

The following table shows supported RAID levels for each volume type in a RAID Group.

Volume type	RAID Level				
	RAID0	RAID1	RAID1+0	RAID5	RAID6
Open, SDV, SDPV	OK	OK	OK	OK	OK
Mainframe (F6427G, F6427H, F6427K)	–	OK	–	–	–
MVV (MVV (G), MVV (H), MVV (K))	–	OK	–	–	–

OK: Supported

–: Not supported

## ■ Coexistence of volume types in a RAID Group

Volume type		Open	SDV	SDPV	Mainframe			MVV		
					F6427G	F6427H	F6427K	MVV(G)	MVV(H)	MVV(K)
Open		OK	OK	OK	–	–	–	–	–	–
SDV		OK	OK	OK	–	–	–	–	–	–
SDPV		OK	OK	OK	–	–	–	–	–	–
Main-frame	F6427G	–	–	–	OK	–	–	OK	–	–
	F6427H	–	–	–	–	OK	–	–	OK	–
	F6427K	–	–	–	–	–	OK	–	–	OK
MVV	MVV(G)	–	–	–	OK	–	–	OK	–	–
	MVV(H)	–	–	–	–	OK	–	–	OK	–
	MVV(K)	–	–	–	–	–	OK	–	–	OK

OK: Coexistence possible

–: Coexistence Not permitted

Different volume types cannot coexist in one RAID Group. However, Mainframe Volume and MVV Volume, or Open Volume, Snap Data Volume, and Snap Data Pool Volume can exist together in one RAID Group.

## ■ Maximum capacity of Thin Provisioning Volume (TPV) for each model

The following table shows the maximum Thin Provisioning Volume capacity that can be created for each model.

Model	Maximum TPV Capacity (TB) (*1)
ETERNUS DX410	312
ETERNUS DX440	630
ETERNUS DX8100	630
ETERNUS DX8400	1024
ETERNUS DX8700	1024

\*1: The maximum Thin Provisioning Volume capacity for each model is equal to the maximum Thin Provisioning Pool capacity for each model.

**Caution**



- When the model of ETERNUS DX400/DX8000 series is unidentifiable, volumes cannot be created. Click the [OK] button to return to the [Menu] screen.
- When there is a concatenated volume (MVV Concatenated volume or Open Concatenated volume) in the ETERNUS DX400/DX8000 series, creation of the maximum number of volumes is not allowed.
- When "GS License" is not registered in the device, Mainframe Volume, MVV Volume, and MVV Concatenated Volume cannot be created.
- When "Advanced Copy License" is not registered in the device, Snap Data Volume cannot be created.
- When encryption mode is disabled, an encryption volume cannot be created.
- Snap Data Pool Volumes (SDPV) cannot be created with the [Create Logical Volume] function. Create an SDPV using the [Set Snap Data Pool] function.
- When the "Thin Provisioning License" is not registered in the ETERNUS DX400/DX8000 series, Thin Provisioning Volume cannot be created.
- When there is a Thin Provisioning Volume in the ETERNUS DX400/DX8000 series, creation of the maximum number of volumes is not allowed.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the RAID Groups or Thin Provisioning Pools in which volumes can be created differ depending on the current user account.
  - When logged on using a Total Administrator account, volumes can be created in all the RAID Groups, or in all the Thin Provisioning Pools, that are assigned to Resource Domains.
  - When logged on using a Resource Domain Administrator account, volumes can be created only in the RAID Groups, or only in the Thin Provisioning Pools, that are assigned to the relevant Resource Domain and the Shared Resource.



**Note**

After creating Thin Provisioning Volume in the ETERNUS DX400/DX8000 series, use the [Set Thin Provisioning Volume Parameters] menu to set the threshold to monitor the free capacity of Thin Provisioning Pool. The default threshold value (10(%)) is specified when a Thin Provisioning Volume is created.

The following settings are available.

- [Create Thin Provisioning Volumes](#)
- [Create Non-Thin Provisioning Volumes](#)

Procedures for each operation are described below.

### 5.2.6.1 Create Thin Provisioning Volumes

This section explains procedures to create Thin Provisioning Volumes.

#### Procedure

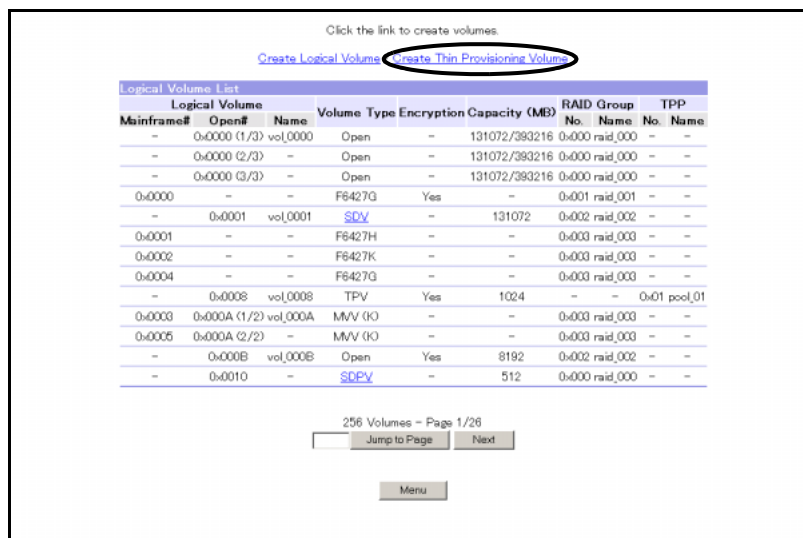
- 1 Click [Create Logical Volume] under the Thin Provisioning Management in the [Configuration] menu.  
→ The [Create Logical Volume (Initial)] screen appears.

#### Caution



- When there is no Thin Provisioning License registered, the [Create Thin Provisioning Volume] link does not appear.
- When the maximum number of volumes has already been created in the device, the [Create Thin Provisioning Volume] link does not appear. To create a new Thin Provisioning Volume, please delete volumes first using the [Delete Logical Volume] function, and then, re-execute [Create Logical Volume].

- 2 Click the [Create Thin Provisioning Volume] link to start creating a Thin Provisioning Volume.



→ The [Create Logical Volume (Select Pool)] screen appears.

#### Caution



If the [Create Thin Provisioning Volume] link is clicked in the following conditions, the suppress function screen appears. Click the [OK] button to return to the [Menu] screen.

- When there is no Thin Provisioning Pool that can create Thin Provisioning Volumes in the ETERNUS DX400/DX8000 series
- When the maximum capacity of Thin Provisioning Volumes are already registered

- 3 Select the Thin Provisioning Pool to create Thin Provisioning Volumes, and click the [Set] button.

**CAUTION**  
If there is a RAID migration process or a Balance Thin Provisioning Volume process in the Thin Provisioning Pool, the process will be cancelled. Delete the session in "Progress of RAID Migration" or "Progress of Balance Thin Provisioning Volume".

Please choose a Thin Provisioning Pool to create the Thin Provisioning Volume in.

Thin Provisioning Pool List											
No.	Name	Disk Type	Reliability	Status	Capacity (MB)	Used Capacity (MB)	Status	Notice (%)	Warning	Caution	Encryption Usage
C-00	pool_00	Online	High	Available	3360768	0	Normal	90	-	-	-
C-01	pool_01	Online	High	Available	3360768	134400	Normal	90	75	-	TPV
C-02	pool_02	Online	High	Available	3360768	134400	Normal	90	75	-	TPV
C-03	pool_03	Online	High	Available	3360768	134400	Normal	90	75	-	TPV
C-04	pool_04	Online	High	Available	3360768	134400	Normal	90	75	-	TPV
C-05	pool_05	Online	High	Available	3360768	134400	Normal	90	75	-	TPV
C-06	pool_06	Nearline	Medium	Available	29578752	26880	Normal	90	80	-	TPV
C-07	pool_07	Nearline	Medium	Available	29578752	26880	Normal	90	80	-	TPV
C-08	pool_08	Nearline	Medium	Available	29578752	26880	Normal	90	80	-	TPV
C-09	pool_09	Nearline	Medium	Available	29578752	26880	Normal	90	80	-	TPV

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→ The [Create Logical Volume (Create Thin Provisioning Volume)] screen for the selected Thin Provisioning Pool appears. Refer to ["A.11.2 Create Logical Volume \(Create Thin Provisioning Volume\) Screen" \(page 727\)](#) for screen details.

**Caution**

When the [Set] button is clicked without selecting a Thin Provisioning Pool, an error screen appears.

**Note**

Encrypt status of the Thin Provisioning Volume follows the encrypt status of Thin Provisioning Pool. Encrypted Thin Provisioning Volumes are created in the encrypted Thin Provisioning Pool. Non-encrypted Thin Provisioning Volumes are created in the non-encrypted Thin Provisioning Pool.

- 4** Input the volume capacity in the Capacity text box, and specify the number of volumes to be created. Then, input the Thin Provisioning Volume name in the Name text box, and click the [Add] button.

Thin Provisioning Volume name can be omitted.

Thin Provisioning Pool# 0x00 - pool 00

Logical Volume	Volume	Encryption	Capacity
Mainframe# Open# Name	Type		(MB)

0 Volume - Page 1/1

Logical Volume Name

Name

Volume Type

Number of volumes Used / Max

TPV Free : 3360768 MB

TPV Free : 3360768 MB

TPV : Capacity : MB

Add Return

→ The [Create Logical Volume (Create Thin Provisioning Volume)] screen appears.

The Thin Provisioning Volumes to be added are displayed with a yellow background.

Repeat [Step 4](#) to add more Thin Provisioning Volumes. Up to 128 volumes can be created at the same time. When creating 129 or more volumes, move on to [Step 5](#), complete creating Thin Provisioning Volumes, and re-execute the [Create Logical Volume].

When adding Thin Provisioning Volumes completes, move on to [Step 5](#).

**Caution**



When clicking the [Add] button in the following conditions, an error screen appears.

- When Capacity field is blank
- When entering characters other than numerals (between 24 and 33,554,432) for Capacity field
- When the Capacity value exceeds the Free area in the ETERNUS DX400/DX8000 series
- When the additional capacity (Capacity value × Number of volumes to be created) exceeds the Free area in the ETERNUS DX400/DX8000 series
- When the number of volumes to be created is blank
- When entering characters other than numerals as the number of volumes to be created
- When the total number of additional volumes and specified number of volumes exceeds 128
- When the total number of additional volumes and specified number of volumes exceeds the available number of resources used for creating volume (Usage of resources is displayed as [Used/Max] or [All Domains Used/Max])
- When the total number of additional volumes and specified number of volumes exceeds the available number of the selected Thin Provisioning Pools in the Resource Domain (Usage of resources in the relevant Resource Domain is displayed as [Current Domain Used/Assignable])
- When entering characters other than ASCII code (0x20 – 0x7E) for Name field

- When entering existing Thin Provisioning Volume names in the Name field (\*1)
- When entering existing volume names in the Name field (\*1)

\*1: This item is not checked when creating two or more volumes at the same time. Note that the volume name will be changed so as not to overlap. Refer to ["Naming rules when creating multiple volumes" \(page 722\)](#) for details.

### Note

- Thin Provisioning Volumes that have already been registered in the Thin Provisioning Pool are not displayed in the Volume List.
- To delete the added Thin Provisioning Volume(s), select the Thin Provisioning Volume(s) to be deleted using the checkbox, and click the [Delete] button.
- Thin Provisioning Volumes registered in the Volume List can be renamed. When renaming Thin Provisioning Volume, enter the new name in the Name field.

## 5 Click the [Set] button.

Mainframe#	Open#	Name	Volume Type	Encryption	Capacity (MB)
<input type="checkbox"/>	-	0x0100 tpv	TPV	Yes	1024
<input type="checkbox"/>	-	0x0101 tpv00001	TPV	Yes	1024
<input type="checkbox"/>	-	0x0102 tpv00002	TPV	Yes	1024

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**Logical Volume Name**

Name: tpv

**Volume Type**      **Number of volumes Used / Max**

TPP Free : 3380768 MB

TPV Free : 3357696 MB      3 Volumes      259/16384

TPV : Capacity : 1024 MB

Add   Delete   **Set**   Return

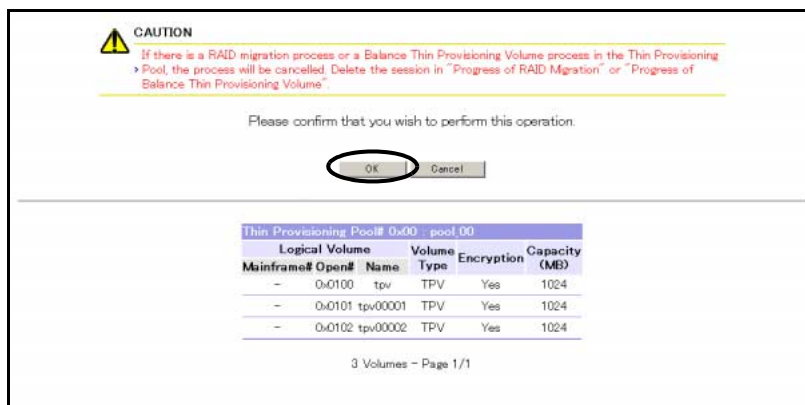
→ The [Create Logical Volume (Check Thin Provisioning Volume Creation)] screen appears.

### Caution

When clicking the [Set] button in the following conditions, an error screen appears.

- When entering characters other than ASCII code (0x20 – 0x7E) for Name field
- When entering the same volume name as the additional volume in the Name field
- When entering an existing volume name in the Name field

## 6 Click the [OK] button.



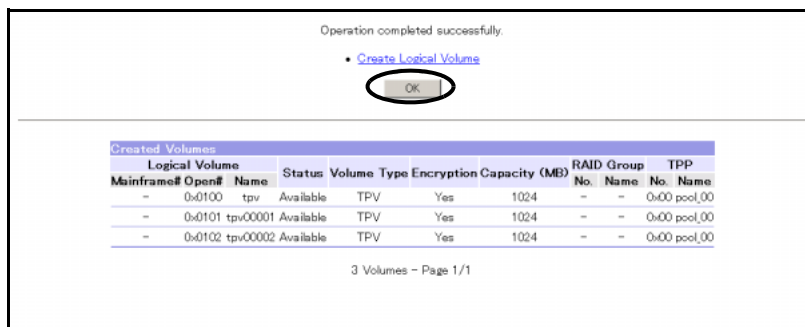
→ The [Create Logical Volume (Updating Configuration Information)] screen appears. When all the operations complete successfully, the [Create Logical Volume (Complete Thin Provisioning Volume Creation)] screen appears.



Note

When the Thin Provisioning Volume name is specified, the [Create Logical Volume (Setting Logical Volume Name)] screen appears after the [Create Logical Volume (Updating Configuration Information)] screen.

## 7 Click the [OK] button.



→ Returns to the [Menu] screen.

### Caution



- When a problem occurs during the setting process of Thin Provisioning Volumes, an error screen appears.
- When creating Thin Provisioning Volumes, thresholds (default value) for monitoring the free capacity of Thin Provisioning Pool are specified for each volume. Set the appropriate thresholds using the [Set Thin Provisioning Volume Parameters] function.



Note

Click the [Create Logical Volume] link to continue Thin Provisioning Volume creation.

End of procedure

### 5.2.6.2 Create Non-Thin Provisioning Volumes

This section explains procedures for creating non-Thin Provisioning Volumes.

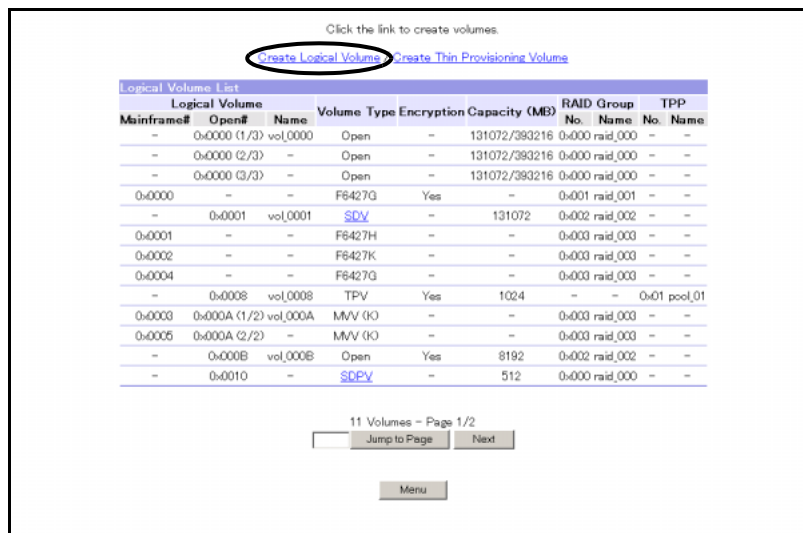
#### Procedure

- 1 Click [Create Logical Volume] under the RAID Management in the [Configuration] menu.  
→ The [Create Logical Volume (Initial)] screen appears.

#### Caution

When the maximum number of volumes has already been created in the device, the [Create Logical Volume] link does not appear. To create a new Logical Volume, please delete volumes first using the [Delete Logical Volume] function, and then, re-execute [Create Logical Volume].

- 2 Click the [Create Logical Volume] link to start creating a volume.



→ The [Create Logical Volume (Select RAID Group)] screen appears.

- 3** Select the RAID Group in which Logical Volumes are to be created, and click the [Set] button.

Please choose a RAID Group to create the logical volume in.

RAID Group List									
RAID Group No.	Name	RAID Level	Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No.	Name
C 0000	raid_000	RAID5	Available	CM#0-CPU#0	149504	-	Open, SDPV	-	-
C 0001	raid_001	RAID1	Available	CM#3-CPU#1	149504	OFF	Mainframe	-	-
C 0002	raid_002	RAID1+0	Available	CM#1-CPU#0	1048528	-	SDV	-	-
C 0003	raid_003	RAID1	Available	CM#2-CPU#1	971776	OFF	Mainframe, MVV	-	-
C 0004	raid_004	RAID1+0	Available	CM#2-CPU#0	1121280	-	Open	-	-
C 0005	raid_005	RAID1	Available	CM#1-CPU#1	1943552	OFF	-	-	-
C 0006	raid_006	RAID5	Available	CM#3-CPU#0	598016	-	-	-	-
C 0007	raid_007	RAID1+0	Available	CM#0-CPU#1	1196032	-	-	-	-
C 0008	raid_008	RAID1	Available	CM#0-CPU#0	149504	OFF	-	-	-
C 0009	raid_009	RAID1+0	Available	CM#3-CPU#1	149504	-	-	-	-

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→ The [Create Logical Volume (Create Logical Volume)] screen of the selected RAID Group appears.

Refer to "[A.11.1 Create Logical Volume \(Create Logical Volume\) Screen](#)" (page 720) for screen details.

**Caution**



When the [Set] button is clicked without selecting a RAID Group, an error screen appears.

- 4** Select the free space using the checkbox(es), and specify the type and number of volumes for Logical Volumes to be created in the RAID Group. When creating the encryption volume, check the [Create as an encrypted volume.] checkbox. When setting volume name, input the volume name into the Name text box.
- When [Mainframe] or [MVV] is selected  
Specify the number of volumes to create after selecting the format type from the list box.
  - When [MVV Concatenation] is selected  
Specify the number of MVV Concatenated volumes to create after selecting the format type from the list box and entering the number of volumes to be concatenated.
  - When [Open] is selected  
Specify the size of 1 volume in the Capacity text box, and specify the number of volumes to be created.
  - When [SDV] (Snap Data volume) is selected  
Specify the size of 1 volume in the Capacity text box, enter copy source size in the Virtual Capacity text box, and specify the number of volumes to be created.

**Note**

- Encrypted volumes cannot be directly converted to non-encrypted volumes.  
To convert an encrypted volume into a non-encrypted volume, first backup the encrypted volume's data via the server, then recreate the volume, without encryption, and restore the data to it. Make sure that the [Create as an encrypted volume.] checkbox is not selected when creating the new volume.
- Create the equal number of Snap Data volumes (SDV) and generations per copy source volume when using SnapOPC+.
- Volume name can be omitted. Note that volume name cannot be specified for the Mainframe volumes.

RAID Group# 0x008 : raid 008, RAID1, DVCF: OFF

Logical Volume	Mainframe#	Open#	Name	Volume Type	Encryption	Allocated Capacity (MB)
Free	-	-	-	-	-	148504

Logical Volume Name

Name (Logical Volume name is not applied to Mainframe Volume.)

Volume Type

Format Type : [ ]

Format Type : [ ]

Format Type : [ ]

Number of Concatenation Volumes [2] Volumes

Capacity : [ ] MB [1] Volumes

Capacity : [ ] MB

Virtual Capacity : [ ] MB

(Total Capacity for a Snap Data Volume will be the Capacity + about 0.1% of the Virtual Capacity.)

☐ Create as an encrypted volume.

Add Delete Set Return

**Caution**

- Volume types that can be created differ depending on the RAID level, enabled/disabled for the DVCF mode, and the volume conditions, etc. in the selected RAID Group. On this screen, only the available volume type is displayed.
- When "GS License" is not registered in the device, Mainframe Volume, MVV Volume, and MVV Concatenated Volume cannot be created.
- When "Advanced Copy License" is not registered in the device, Snap Data Volume cannot be created.
- When the encryption mode is disabled, the encryption volume cannot be created.
- Checking multiple "free" spaces and creating a volume is not allowed.

**5** Click the [Add] button.

RAID Group# 0x008 - raid 008, RAID1, DVCF - OFF

Logical Volume	Volume Type	Encryption	Allocated Capacity (MB)
Mainframe# Open# Name			
<input type="checkbox"/> Free	-	-	148504

Logical Volume Name  
Name :   
(Logical Volume name is not applicable to Mainframe Volume.)

Volume Type Number of volumes

☐ Mainframe : Format Type :

☐ MVV : Format Type :

☐ MVV Concatenation : Format Type :

Number of Concatenation Volumes  Volumes

☐ Open : Capacity :  MB  Volumes

☐ SDV : Capacity :  MB

Virtual Capacity :  MB

(Total capacity for a Snap Data Volume will be the Capacity + about 0.1% of the Virtual Capacity.)

☐ Create as an encrypted volume.

→ The [Create Logical Volume (Check Logical Volume Creation)] screen appears.  
The Logical Volumes to be added are displayed with a yellow background.  
Repeat Steps 4 and 5 to add more volumes.

**Caution**



When clicking the [Add] button in the following conditions, an error screen appears.

- Volume type and format type are not selected
- Capacity, copy source capacity, number of concatenated volumes, and number of volumes to be created are not specified
- When entering characters other than numerals (between 24 and 8,388,607) for Capacity field
- When the Capacity value exceeds the Free area in the ETERNUS DX400/DX8000 series
- When the additional capacity (Capacity value × Number of volumes to be created) exceeds the Free area in the ETERNUS DX400/DX8000 series
- When entering characters other than numerals as the number of volumes to be created
- When the entered number of volumes to be created exceeds the maximum number which can be created in one RAID Group
- When the total number of volumes to be created and registered volumes in the ETERNUS DX400/DX8000 series exceeds the maximum number of volumes for each model
- When the total number of additional volumes and specified number of volumes exceeds 128
- When the total number of additional volumes, specified number of volumes, and the total number of volumes (total number of Open, SDV, and TPV) that have already been assigned to the Resource Domain of the selected RAID Group exceeds the maximum number of volumes for the relevant Resource Domain
- When entering characters other than ASCII code (0x20 – 0x7E) in the Name field

- When entering the same volume name as the additional volume in the Name field (\*1)
- When entering an existing volume name in the Name field (\*1)

\*1: This item is not checked when creating two or more volumes at the same time. Note that the volume name will be changed not to be overlapped. Refer to "[Naming rules when creating multiple volumes](#)" (page 722) for details.

### Note

- To delete the added Logical Volumes, select the checkboxes of the Logical Volumes to be deleted, and click the [Delete] button. Note that free space cannot be deleted. If deletion is attempted, an error screen is displayed.
- Volumes registered in the Volume List can be renamed. When renaming Volumes, enter the new name in the Name text box.

## 6 Click the [Set] button.

RAID Group# 0x008 : raid 008, RAID1					
Mainframe#	Open#	Logical Volume Name	Volume Type	Encryption	Allocated Capacity (MB)
<input type="checkbox"/>	0-0002	volume	Open	Yes	1024
<input type="checkbox"/>	0-0003	volume0001	Open	Yes	1024
<input type="checkbox"/>	0-0004	volume0002	Open	Yes	1024
<input type="checkbox"/>	0-0005	volume0003	Open	Yes	1024
<input type="checkbox"/>	0-0006	volume0004	Open	Yes	1024
<input type="checkbox"/>	Free	-	-	-	144384

Logical Volume Name  
Name:   
(Logical Volume name is not applicable to Mainframe Volume.)

Volume Type      Number of volumes

☒ Open : Capacity :  MB

☐ SDV : Capacity :  MB

Virtual Capacity :  MB  Volumes

(Total capacity for a Snap Data Volume will be the Capacity + about 0.1% of the Virtual Capacity.)

☒ Create as an encrypted volume.

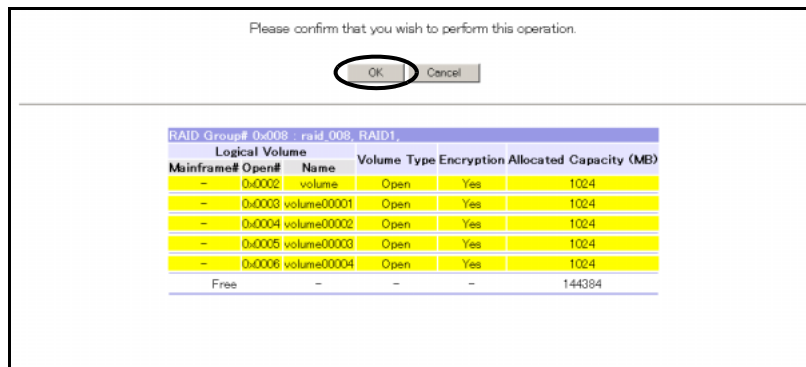
→ The [Create Logical Volume (Check Update)] screen appears.

### Caution

When clicking the [Set] button in the following conditions, an error screen appears.

- No volumes are added
- When entering characters other than ASCII code (0x20 – 0x7E) in the Name field
- When entering the same volume name as the additional volume in the Name field
- When entering an existing volume name in the Name field

**7** Click the [OK] button.



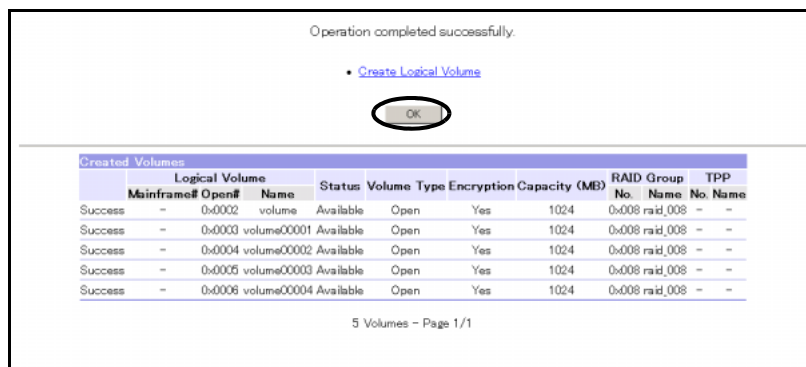
→ The [Create Logical Volume (Updating Configuration Information)] screen appears. When the updating completes, formatting starts. When starting of the format process is complete, the [Create Logical Volume (Creating Complete)] screen appears.



Note

When the volume name is specified, the [Create Logical Volume (Setting Logical Volume Name)] screen appears after the [Create Logical Volume (Updating Configuration Information)] screen.

**8** Click the [OK] button.



→ Returns to the [Menu] screen.



Caution

- When a problem occurs during the setting process of volumes, an error screen appears.
- After creating volumes is complete, the new volumes are automatically formatted. When exceeding the maximum capacity of volumes that can be formatted concurrently, a message to that effect appears. Wait until the current format process is complete, and then format the volumes that failed to be formatted. When volumes fail to be formatted, "Error" or "Not formatted" is displayed as the result of the format starting process.



Note

- Click the [Create Logical Volume] link to continue volume creation.
- If mapping is performed after volume registration and during format, the volume will be accessible from the host. If mapping is performed on an encrypted volume where [Create as an encrypted volume.] was selected when creating, access is also possible during format.
- Progress of volume format can be checked using the [Volume List] or the [RAID Group List] function.

End of procedure

## 5.2.7 Set Snap Data Pool

When the Snap Data Volume (SDV) used as a copy destination for SnapOPC or SnapOPC+ is shortened during the operation, the SDV capacity is automatically expanded. Space to be used for the SDV capacity expansion is called Snap Data Pool (SDP), which is configured by multiple Snap Data Pool Volumes (SDPV). When the SDV capacity is shortened by data copy and/or writing from the host, space in the SDP is allocated in units of Snap Data Pool Elements (SDPE). When the SDPV creation process is completed, the SDPV will be formatted automatically.

### ■ SDPV Requirements

- Volume capacity should be 2TB or less.
- Volume capacity should be in multiple of SDPE capacity (1GB/2GB/4GB).

### ■ Conditions of RAID group in which SDPV(s) will be created

- The [Status] of the RAID Group must be [Available], or [Present].
- A RAID Group which is not used, or a RAID Group with an Open Volume, a Snap Data Volume, or a Snap Data Pool Volume created.
- If volumes are created in the RAID Group, the number of volumes in the RAID Group must be less than 128.
- RAID Group must not be registered in the Thin Provisioning Pool.
- RAID Group must not be registered as the REC Disk Buffer.
- If the RAID Group is not used (no volume created), DVCF Mode must be [OFF] or [-].
- The free space (Free) in the RAID group must be 1GB or more.
- RAID Group must not be blocked.
- The RAID Group is not LDE processing.

■ The maximum number of volumes for each model

The [Set Snap Data Pool] function creates a new volume. The following shows the maximum number of volumes which can be created for each model.

Model	The maximum numbers of volumes
	(Open Volume + Snap Data Volume + Snap Data Pool Volume + Thin Provisioning Volume)
ETERNUS DX410	2048
ETERNUS DX440	4096
ETERNUS DX8100	3712 (4096) (*1)
ETERNUS DX8400	16384
ETERNUS DX8700	16384

\*1: The maximum number of volumes when creating Thin Provisioning Volumes. However, the actual number of volumes that can be created is less than the maximum value as specified by the Thin Provisioning function.

**Caution**



- When "Advanced Copy License" is not registered in the ETERNUS DX400/DX8000 series, SDPV cannot be created.
- When the encryption mode is disabled, the encrypted SDPV cannot be created.
- When expanding a Non-encrypted SDV, a Non-encrypted SDPV is required. When expanding an encrypted SDV, an encrypted SDPV is required. Create Non-encrypted or encrypted SDPV according to the encryption status of SDV to be expanded.
- Even though the Eco-mode schedule is set for a RAID Group with SDPV, the disk motor will not be deactivated.
- SDPV cannot be created in a RAID Group that is registered in the Thin Provisioning Pool.
- SDPV cannot be created in a RAID Group that is registered as the REC Disk Buffer.
- The following functions cannot be used for SDPV:
  - Host Affinity settings
  - LUN mapping
  - Convert encryption volume
  - LUN Concatenation
  - RAID Migration
  - Volume name assignment
  - Assigning to Resource Domain

- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the RAID Groups in which SDPVs can be created differ depending on the current user account.
  - When logged on using a Total Administrator account, SDPVs can be created in all the RAID Groups that are assigned to Resource Domains.
  - When logged on using a Resource Domain Administrator account, SDPVs can be created only in the RAID Groups that are assigned to the relevant Resource Domain and the Shared Resource.
- The [Set Snap Data Pool] function cannot be used in the following conditions:
  - No RAID Groups are registered in the ETERNUS DX400/DX8000 series.
  - Mainframe volumes, MVV volumes, or MVV Concatenated volumes are registered for all the RAID groups in the ETERNUS DX400/DX8000 series.
  - When all the RAID Groups registered in the ETERNUS DX400/DX8000 series are registered in the Thin Provisioning Pool.
  - When all the RAID Groups registered in the ETERNUS DX400/DX8000 series are registered as the REC Disk Buffer.
  - When no SDPV is created in the ETERNUS DX400/DX8000 series, and the RAID Group is in the following conditions:
    - Only one RAID Group is registered in the ETERNUS DX400/DX8000 series, and LDE is in progress in the RAID Group.
    - The [Status] of all the RAID Groups is not [Available], or [Present].
    - The DVCF mode for all the RAID Group is [ON].
    - All the RAID Groups are blocked.
- When no SDPV is created, and the maximum number of volumes for each model is already registered, the [Set Snap Data Pool] function cannot be used.

 Note

- Unlike other volumes, SDPV cannot be created by [Create Logical Volume] function or deleted by [Delete Logical Volume] function.
- While SDPV can be created in any level RAID group, it is recommended that the same RAID group configuration (same RAID level and same number of disk drives) be used for all SDPVs created.
- The maximum capacity of SDP varies according to the unit of SDV allocation (SDPE). The following table shows the maximum capacity of SDP for each SDPE capacity. Refer to the "Available Capacity (GB)" in [Snap Data Pool Information] on the [Set Snap Data Pool (SDPV List)] screen for the available SDP capacity when creating the SDPV.

SDPE capacity (Unit of SDV allocation)	Maximum number of SDPE (in the system)	Maximum capacity of SDP (in the system)
1GB	16384	16TB
2GB	16384	32TB
4GB	16384	64TB

- Allocated space (SDPE) to SDV from the SDPV is canceled in the following conditions:
  - When stopping the SnapOPC session or SnapOPC+ session:  
If one SnapOPC+ session is stopped, all the SnapOPC+ sessions started earlier than that session are also stopped. Space used in the SDV for the stopped generation is canceled.
  - When the SnapOPC session or SnapOPC+ session turns to [Error] status:  
If one SnapOPC+ session status turns to Error, all the SnapOPC+ sessions started earlier than that session also become Error status. Space used in the SDV for the generation in Error status is canceled.
  - When initializing the SDV with [Initialize Snap Data Volume] menu.
- When deleting the SDPV in "Normal mode", the SDPV that is being used becomes scheduled for deletion. This status can be checked from the [Set Snap Data Pool (SDPV List)] screen in the [Set Snap Data Pool] and the following screens.
  - The [Volume List (Initial)] screen in the [Volume List] menu
  - The [RAID Group List (Volume in the RAID Group)] screen in the [RAID Group List] menu
  - The [Volume List (Snap Data Volume Details)] screen when clicking the [SDPV] link in the [Logical Volume List] menu (displayed in another window)

---

This function provides the functions regarding SDP used for SDV expansion.  
The following settings are available.

- [Create SDPV](#)
- [Delete SDPV](#)
- [Display a list of copy sessions and SDVs using the SDPV](#)
- [Change SDPE](#)

This section explains procedures to set the Snap Data Pool.

### 5.2.7.1 Create SDPV

The following shows the procedure to create a Snap Data Pool Volume (SDPV).

---

#### Procedure

- 1 Click [Set Snap Data Pool] under the RAID Management in the [Configuration] menu.
  - The [Set Snap Data Pool (SDPV List)] screen appears.  
Refer to ["A.12.1 Set Snap Data Pool \(SDPV List\) Screen" \(page 729\)](#) for screen details.

2 Click the [Create SDPV] link.

[Create SDPV](#) / [Delete SDPV](#) / [Change SDPE](#)

**Snap Data Pool Information**  
 Total Capacity 12288 GB  
 Available Capacity 4096 GB  
 SDPE 1 GB

SDP Information for Non-encrypted Volume				SDP Information for Encrypted Volume			
Total Capacity	8192 GB	Total Capacity	4096 GB				
Used Capacity	2048 GB	Used Capacity	1024 GB				
Used Capacity Detail	Host Copy 0 GB 2048 GB	Used Capacity Detail	Host Copy 0 GB 1024 GB				

Logical Volume#	Status	Volume Type	Encryption	Capacity (GB)	SDPE (GB)	RAID Group No. Name
0x0005	Available	SDPV	-	1024	1	0x000 raid_000
0x0006	Available	SDPV	-	1024	1	0x001 raid_001
0x0008	Available	SDPV	-	1024	1	0x012 raid_012
0x000C	Available	SDPV	-	1024	1	0x013 raid_013
0x0100	Available	SDPV	Yes	1024	1	0x014 raid_014
0x0101	Available	SDPV	-	1024	1	0x015 raid_015
0x0102	Scheduled for Deletion	SDPV	Yes	1024	1	0x016 raid_016
0x0103	Available	SDPV	-	1024	1	0x017 raid_017
0x0104	Available	SDPV	Yes	1024	1	0x018 raid_018
0x0105	Available	SDPV	-	1024	1	0x019 raid_019

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→ The [Set Snap Data Pool (Select RAID Group)] screen appears.

**Caution**

If the maximum number of volumes has already been created in the ETERNUS DX400/DX8000 series, the [Create SDPV] link will not appear.

3 Select the RAID Group in which SDPVs are to be created, and click the [Set] button.

Please select a RAID Group to create SDPV in.

RAID Group No.	Name	RAID Level	Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No. Name
0x000 raid_000	RAID5	Available	CM#0-CPU#0	148504	-	Open, SDV, SDPV	-	-
0x001 raid_001	RAID1	Available	CM#3-CPU#1	148504	-	Open, SDPV	-	-
0x002 raid_002	RAID1+0	Available	CM#1-CPU#0	1046528	-	Open	-	-
0x003 raid_003	RAID1+0	Available	CM#2-CPU#1	5601280	-	-	-	-
0x004 raid_004	RAID1+0	Available	CM#2-CPU#0	1121280	-	Open	-	-
0x005 raid_005	RAID1	Available	CM#1-CPU#1	1943552	OFF	Mainframe, MVV	-	-
0x006 raid_006	RAID5	Available	CM#3-CPU#0	598016	-	SDV	-	-
0x007 raid_007	RAID1+0	Available	CM#0-CPU#1	1196032	-	Open	-	-
0x008 raid_008	RAID1	Available	CM#0-CPU#0	148504	ON	-	-	-
0x009 raid_009	RAID1+0	Available	CM#3-CPU#1	148504	-	Open	-	-

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→ The [Set Snap Data Pool (Create SDPV)] screen of the selected RAID Group appears. Refer to "[A.12.2 Set Snap Data Pool \(Create SDPV\) Screen](#)" (page 731) for screen details.

**Caution**

When the [Set] button is clicked without selecting a RAID Group, an error screen appears.

- 4** Select the free space (Free), and specify the capacity and number of SDPV to be created in the RAID Group.
- When creating the encrypted SDPV, check the [Create as an encrypted volume.] checkbox.

Logical Volume	Open#	Name	Volume Type	Encryption	Allocated Capacity (GB)	SDPE (GB)
Free	-	-	-	-	5470.00	-

Volume Type Capacity of volumes SDPE Number of volumes

SDPV: Capacity: 1024 GB SDPE: 1 GB 1 Volumes

☒ Create as an encrypted volume.

Add Delete Set Return

**Caution**

- If the encryption mode is disabled, encrypted SDPVs cannot be created.
- Multiple [Free] spaces cannot be selected to create an SDPV.

**Note**

- Specify the SDPV capacity as a multiple of the SDPE capacity. The SDPE capacity value may be changed using the ["5.2.7.4 Change SDPE" \(page 195\)](#) function. SDPVs created after the SDPE is changed will use the new value. If a different SDPE is used in an ETERNUS DX400/DX8000 series, space may be allocated from the SDPVs created with the old SDPE setting. It is recommended to delete the SDPV created with the old SDPE setting in "Normal mode" when the SDPE is changed. Note that SDPV that is "Scheduled for Deletion" is not allocated to the SDV.
- Encrypted SDPVs cannot be changed to Non-encrypted SDPVs, nor may Non-encrypted SDPVs be changed to encrypted SDPVs. Create a Non-encrypted or Encrypted SDPV to match the encryption status of the SDV being expanded.

- 5** Click the [Add] button.

Logical Volume	Open#	Name	Volume Type	Encryption	Allocated Capacity (GB)	SDPE (GB)
Free	-	-	-	-	5470.00	-

Volume Type Capacity of volumes SDPE Number of volumes

SDPV: Capacity: 1024 GB SDPE: 1 GB 1 Volumes

☐ Create as an encrypted volume.

Add Delete Set Return

- The [Set Snap Data Pool (Create SDPV)] screen appears.
- The background color of the SDPV to be added is displayed in yellow.
- Repeat [Step 4](#) and [Step 5](#) to add more SDPV.

**Caution** 

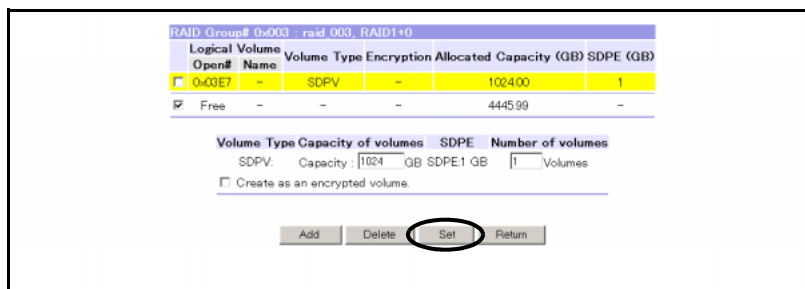
When clicking the [Add] button in the following conditions, an error screen appears.

- When no Free space is selected.
- When multiple Free spaces are selected.
- When selecting SDPV.
- When capacity or number of volumes to be created is not entered.
- When the input value of capacity or number of volumes to be created is other than numeric characters.
- When the capacity of volume to be created exceeds 2,048GB.
- When the capacity of volume to be created is not multiple of SDPE.
- When the total number of volumes to be created and registered volumes in the RAID Group exceeds 128.
- When the total number of volumes to be created and registered volumes in the ETERNUS DX400/DX8000 series exceeds the maximum number of volumes for each model.
- When the total capacity of SDPV (capacity of a volume to be created × number of volumes to be created) exceeds the capacity of Free space.

 **Note**

- To delete the added SDPV(s), select the SDPV(s) to be deleted using the checkbox, and click the [Delete] button. Note that Free space cannot be deleted. If deletion is attempted, an error screen is displayed.
- A link is displayed for the existing SDPV in the RAID Group information. Click the link to display the list of copy sessions and SDVs using the relevant SDPV ([Set Snap Data Pool (SDPV session list)] screen).

**6** Click the [Set] button.



RAID Group# 0x003 : raid 003, RAID1+0

Logical Volume Open#	Name	Volume Type	Encryption	Allocated Capacity (GB)	SDPE (GB)
<input type="checkbox"/> 0x03E7	-	SDPV	-	1024.00	1
<input checked="" type="checkbox"/> Free	-	-	-	4445.99	-

Volume Type Capacity of volumes SDPE Number of volumes

SDPV: Capacity : 1024 GB SDPE: 1 GB 1 Volumes

☐ Create as an encrypted volume.

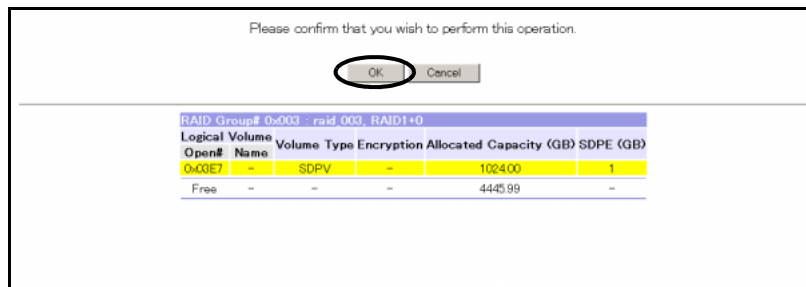
Add Delete **Set** Return

→ The [Set Snap Data Pool (Check SDPV Creation)] screen appears.

**Caution** 

When clicking the [Set] button with no SDPV added, an error screen appears.

**7** Click the [OK] button.

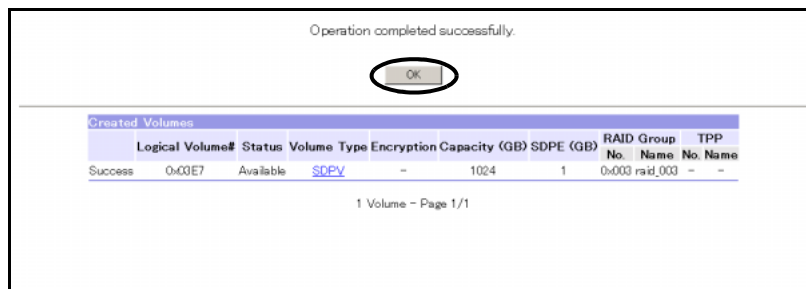


→ The [Set Snap Data Pool (Check SDPV Creation Progress)] screen appears.  
When creation completes, formatting starts.  
The [Set Snap Data Pool (SDPV Creation Result)] screen appears after completing the starting format process.

**Caution**

If creating an SDPV that exceeds the available capacity is attempted, an error screen appears.

**8** Click the [OK] button.



→ Returns to the [Set Snap Data Pool (SDPV List)] screen.

**Caution**

- If any errors occur during the SDPV creation process, a message to that effect is displayed.
- After creating SDPV is complete, the new volumes are automatically formatted. When exceeding the maximum capacity of volumes that can be formatted concurrently, a message to that effect appears. Wait until the current format process is complete, and then format the SDPVs that failed to format. When SDPVs fail to format, "Error" or "Not formatted" is displayed as the result of the format starting process.

**Note**

Progress of volume format can be checked using the [Volume List] or the [RAID Group List] function.

**9** Click the [Menu] button.

→ Returns to the [Menu] screen.

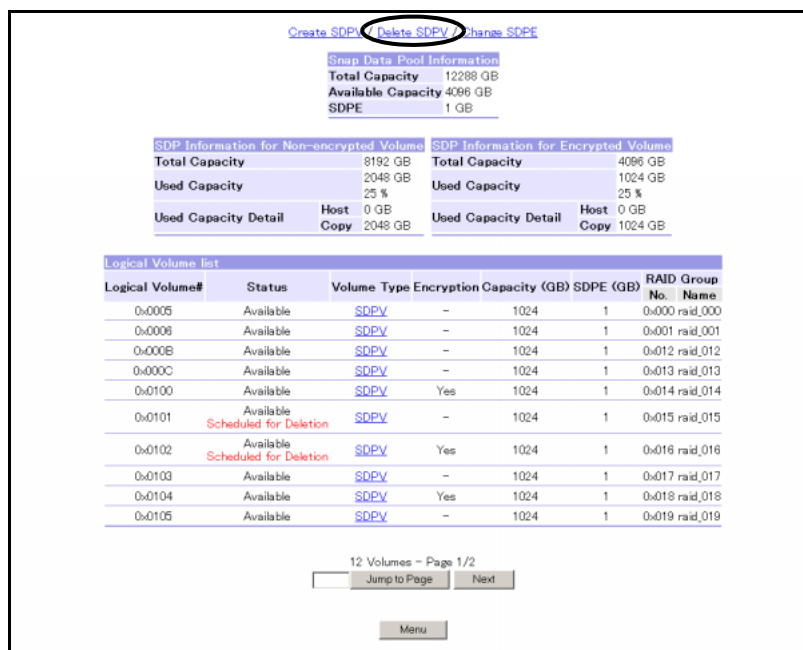
**End of procedure**

### 5.2.7.2 Delete SDPV

The following shows the procedure to delete Snap Data Pool Volumes (SDPV).

#### Procedure

- 1 Click [Set Snap Data Pool] under the RAID Management in the [Configuration] menu.  
 → The [Set Snap Data Pool (SDPV List)] screen appears.  
 Refer to ["A.12.1 Set Snap Data Pool \(SDPV List\) Screen" \(page 729\)](#) for screen details.
- 2 Click the [Delete SDPV] link.



- The [Set Snap Data Pool (Select SDPV)] screen appears.  
 Refer to ["A.12.3 Set Snap Data Pool \(Select SDPV\) Screen" \(page 732\)](#) for screen details.



**Caution** If SDPV is not registered, the [Delete SDPV] link is not displayed.

### 3 Select the Deleting mode and SDPV to be deleted, and click the [Set] button.

The following two methods for Deleting mode are available.

- Normal Mode:  
If the target SDPV is being used, it becomes scheduled for deletion. The SDPV that becomes scheduled for deletion is deleted after all the allocated SDPE are canceled and the SDPV change to an unused state.
- Forcible Mode  
Forcibly delete the target SDPV even if it is used. It is possible to specify the SDPV in "scheduled for deletion" state and delete the target SDPV before it changes to an unused state.

The following two methods for selecting an SDPV to be deleted are available:

- Individual:  
Select SDPV to be deleted from the Logical Volume list. (Multiple selections can be made)
- Range:  
Enter the first and last volume numbers to be deleted in the From/To fields.

Please select the logical volumes that are to be deleted.

Snap Data Pool Information	
Total Capacity	12288 GB
Available Capacity	4096 GB
SDPE	1 GB

SDP Information for Non-encrypted Volume		SDP Information for Encrypted Volume	
Total Capacity	8192 GB	Total Capacity	4096 GB
Used Capacity	2048 GB	Used Capacity	1024 GB
	25 %		25 %
Used Capacity Detail	Host 0 GB Copy 2048 GB	Used Capacity Detail	Host 0 GB Copy 1024 GB

Logical Volume list						
Logical Volume#	Status	Volume Type	Encryption	Capacity (GB)	SDPE (GB)	RAID Group No. Name
<input type="checkbox"/> 0x0005	Available	SDPV	-	1024	1	0x000 raid_000
<input type="checkbox"/> 0x0006	Available	SDPV	-	1024	1	0x001 raid_001
<input type="checkbox"/> 0x000B	Available	SDPV	-	1024	1	0x012 raid_012
<input type="checkbox"/> 0x000C	Available	SDPV	-	1024	1	0x013 raid_013
<input type="checkbox"/> 0x0100	Available	SDPV	Yes	1024	1	0x014 raid_014
<input type="checkbox"/> 0x0101	Available Scheduled for Deletion	SDPV	-	1024	1	0x015 raid_015
<input type="checkbox"/> 0x0102	Available Scheduled for Deletion	SDPV	Yes	1024	1	0x016 raid_016
<input type="checkbox"/> 0x0103	Available	SDPV	-	1024	1	0x017 raid_017
<input type="checkbox"/> 0x0104	Available	SDPV	Yes	1024	1	0x018 raid_018
<input type="checkbox"/> 0x0105	Available	SDPV	-	1024	1	0x019 raid_019

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Deletion method selection

Deleting mode

☒ Normal Mode: When the target volumes are being used, they become scheduled for deletion and will be deleted after they become unused state.

☐ Forcible Mode: Even if the target Volumes are being used, they are forcibly deleted.

Individual / Range Selection

☒ Individual: Select logical volumes for deletion from the above list

☐ Range: From: Logical Volume# 0x To: Logical Volume# 0x

→ The [Set Snap Data Pool (Check SDPV Deletion)] screen appears.

**Caution** 

When clicking the [Set] button in the following conditions, an error screen appears.

- When the Individual Selection is selected, and no SDPV to be deleted is selected.
- When Range Selection is selected, and From: Logical Volume# field is not entered.
- When the Range Selection is selected, and characters other than numeric or alphabetic characters [a] – [f] or [A] – [F] are entered in the From: Logical Volume# field.
- When the Range Selection is selected, and To: Logical Volume# field is not entered.
- When the Range Selection is selected, and characters other than numeric or alphabetic characters [a] – [f] or [A] – [F] are entered in the To: Logical Volume# field.
- When the Range Selection is selected, and there is no SDPV to be deleted between From: Logical Volume# and To: Logical Volume#.
- When the Individual Selection and Normal mode are selected, and "scheduled for deletion" SDPV is selected.
- When the Range Selection and Normal mode is selected, and all the SDPV to be deleted between From: Logical Volume# and To: Logical Volume# is "scheduled for deletion".

 **Note**

Click the [SDPV] link in the [Logical Volume List] to display the list of copy sessions and SDVs using the relevant SDPV ([Set Snap Data Pool (SDPV session list)] screen).

**4** Click the [OK] button.



→ The [Set Snap Data Pool (Check SDPV Deletion Progress)] screen appears.

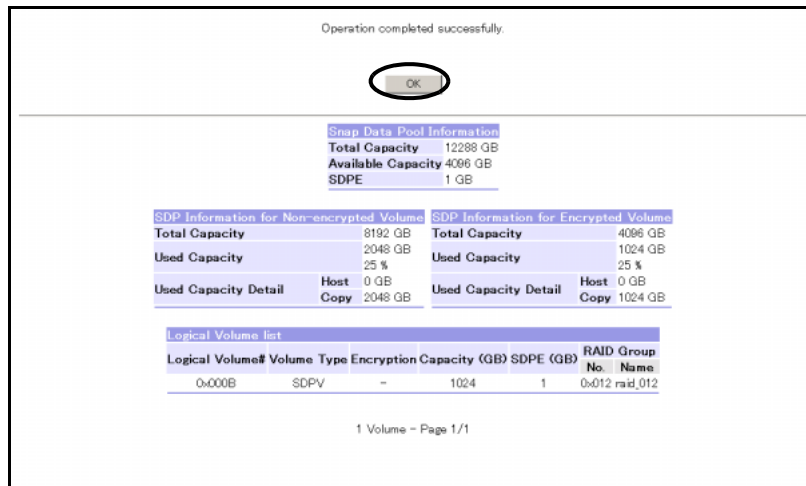
The [Set Snap Data Pool (SDPV Deletion Result)] screen appears after completing the scheduling for deletion or forcible deletion.



**Note**

Selected Deleting mode can be checked from the message screen. When a message that the selected SDPV volume has become scheduled for deletion is displayed, the Deleting mode is "Normal Mode". When no message is displayed, the Deleting mode is "Forcible Mode".

**5** Click the [OK] button.



→ Returns to the [Set Snap Data Pool (SDPV List)] screen.

**6** Click the [Menu] button.

→ Returns to the [Menu] screen.

**End of procedure**

### 5.2.7.3 Display a list of copy sessions and SDVs using the SDPV

This section explains displaying a list of copy sessions and SDVs that use the Snap Data Pool Volumes (SDPV).

#### Procedure

**1** Click [Set Snap Data Pool] under the RAID Management in the [Configuration] menu.

→ The [Set Snap Data Pool (SDPV List)] screen appears.

Refer to ["A.12.1 Set Snap Data Pool \(SDPV List\) Screen" \(page 729\)](#) for screen details.

**2** Click the [SDPV] link in the Logical Volume list.

Create SDPV / Delete SDPV / Change SDPE

**Snap Data Pool Information**  
 Total Capacity 12288 GB  
 Available Capacity 4096 GB  
 SDPE 1 GB

SDPV Information for Non-encrypted Volume				SDPV Information for Encrypted Volume			
Total Capacity	8192 GB	Total Capacity	4096 GB				
Used Capacity	2048 GB	Used Capacity	1024 GB				
Used Capacity Detail	Host 0 GB Copy 2048 GB	Used Capacity Detail	Host 0 GB Copy 1024 GB				

**Logical Volume list**

Logical Volume#	Status	Volume Type	Encryption	Capacity (GB)	SDPE (GB)	RAID Group No.	RAID Group Name
0x0005	Available	SDPV	-	1024	1	0x000	raid_000
0x0006	Available	SDPV	-	1024	1	0x001	raid_001
0x000B	Available	SDPV	-	1024	1	0x012	raid_012
0x000C	Available	SDPV	-	1024	1	0x013	raid_013
0x0100	Available	SDPV	Yes	1024	1	0x014	raid_014
0x0101	Scheduled for Deletion	SDPV	-	1024	1	0x015	raid_015
0x0102	Scheduled for Deletion	SDPV	Yes	1024	1	0x016	raid_016
0x0103	Available	SDPV	-	1024	1	0x017	raid_017
0x0104	Available	SDPV	Yes	1024	1	0x018	raid_018
0x0105	Available	SDPV	-	1024	1	0x019	raid_019

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→ The [Set Snap Data Pool (SDPV session list)] screen appears.

**3** Check the SDPV usage, and click the [Return] button.

**Logical Volume information**

Logical Volume#	Status	Volume Type	Encryption	Capacity (GB)			SDPE (GB)	RAID Group No.	RAID Group Name
				Total Capacity	Host Capacity	Copy Capacity			
0x000B	Available	SDPV	-	1024	0	1	1	0x012	raid_012

**SDPV session list**

SID	Type	Generation	Status	Error Code	From Vol	To Vol	Total Block	Completed Block	Used Host Block	Used Copy Block	Resolution
0x0000	SDPC+	1/2	Active	0x00	0x0100	0x0240	20855136	1192240	0	2087152	x 1
0x0001	SDPC+	2/2	Active	0x00	0x0100	0x0242	20855136	69824	0	0	x 1

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 Download Return

→ Returns to the [Set Snap Data Pool (SDPV List)] screen.

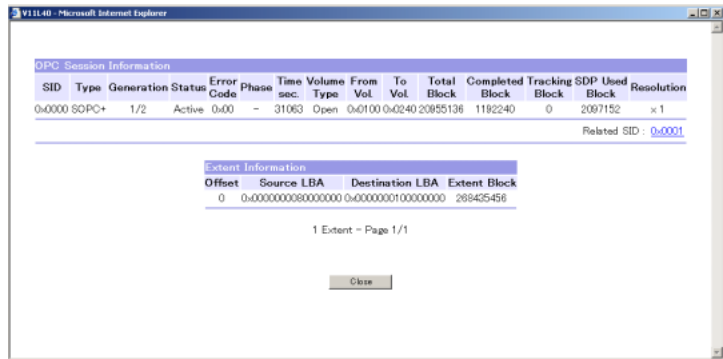
**Caution**

- The SDPV session list must be saved within one minute after clicking the [Download] button. If the download dialog box is left open for over a minute, the download operation may be terminated with an unsuccessfully downloaded file. If the downloaded file cannot be opened, the download has failed, try the download again.
- If the SDPV is deleted, a message to that effect appears. Click the [OK] button to return to the [Set Snap Data Pool (SDPV List)] screen.



Note

- Click the [Download] button in the [Set Snap Data Pool (SDPV session list)] screen to download the SDPV session list. The file name is "SDPV\_session.txt".
- Click the [SID] link in the SDPV session list to check the detailed information of SDPV session.



- 4 Click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

#### 5.2.7.4 Change SDPE

The following shows the procedure to change Snap Data Pool Element (SDPE).

##### Procedure

- 1 Click [Set Snap Data Pool] under RAID Management in the [Configuration] menu.  
→ The [Set Snap Data Pool (SDPV List)] screen appears.  
Refer to ["A.12.1 Set Snap Data Pool \(SDPV List\) Screen" \(page 729\)](#) for screen details.

**2** Click the [Change SDPE] link.

→ The [Set Snap Data Pool (Change SDPE)] screen appears.

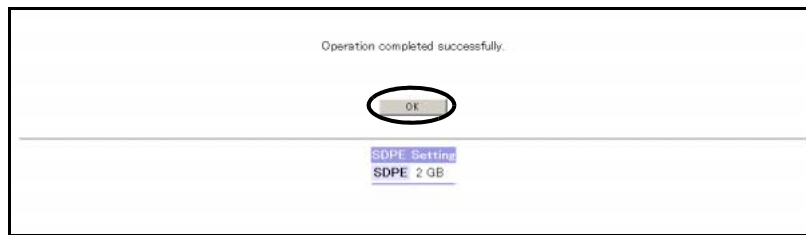
**3** Change the settings, and click the [Set] button.

→ The [Set Snap Data Pool (Check SDPE Changing)] screen appears.

**4** Click the [OK] button.

→ The [Set Snap Data Pool (Check SDPE Changing Progress)] screen appears.  
The [Set Snap Data Pool (Check SDPE Result)] screen appears after completing the process.

**5** Click the [OK] button.



→ Returns to the [Set Snap Data Pool (SDPV List)] screen.



**Note**

If the SDPE is changed, a new SDPV is created with the new SDV allocation unit setting. However, in-use and existing SDPVs continue using their old SDPE capacity based allocation unit settings.

**6** Click the [Menu] button.

→ Returns to the [Menu] screen.

**End of procedure**

## 5.2.8 Rename Logical Volume

This function changes the volume name without stopping ETERNUS DX400/DX8000 series operations. Also, this function can rename multiple volumes at the same time.

The [Rename Logical Volume] function supports the following volume types:

- Open Volumes
- Snap Data Volumes
- Open Concatenated Volumes
- Thin Provisioning Volumes
- MVV Volumes
- MVV Concatenated Volumes

**Caution**

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, volumes that can be renamed differ depending on the current user account.

- When logged on using a Total Administrator account, all the volumes that are assigned to Resource Domains can be renamed.
- When logged on using a Resource Domain Administrator account, only the volumes that are assigned to the relevant Resource Domain, and only the volumes that are assigned to the Shared Resource, can be renamed.

The procedure to change Logical Volume name is described below.

## Procedure

- 1 Click [Rename Logical Volume] under the RAID Management (or Thin Provisioning Management) in the [Configuration] menu.  
→ The [Rename Logical Volume (Change)] screen appears.

### Caution



In the following conditions, volume names cannot be changed. When a message to that effect appears, click the [OK] button to return to the [Menu] screen.

- When there are no volumes registered in the ETERNUS DX400/ DX8000 series
- When the volume types registered in the ETERNUS DX400/ DX8000 series do not support the [Rename Logical Volume] function

- 2 Enter the new volume name in the "Name" text box for the target volume, and click the [Set] button.

Volume List		Logical Volume	Status	Volume Type	Encryption	Capacity (MB)	RAID Group	TPP
Mainframe#	Open#	Name					No. Name	No. Name
-	0x0000	vol_0000	Available	SDV	-	1024	0x000 raid_000	-
0x0000	-	-	Available	F8427G	-	-	0x010 raid_010	-
-	0x0001	vol_0001	Available	Open	-	1024	0x000 raid_000	-
-	0x0002	vol_0002	Available	Open	-	2000	0x000 raid_000	-
-	0x0003 (1/2)	vol_0003	Available	Open	-	2000/4000	0x000 raid_000	-
-	0x0003 (2/2)	-	Available	Open	-	2000/4000	0x000 raid_000	-
-	0x0004	vol_0004	Available	SDV	-	1024	0x000 raid_000	-
-	0x0005	-	Available	SDPV	-	12288	0x000 raid_000	-
0x0001	0x0006	vol_0006	Available	MVV (H)	-	-	0x011 raid_011	-
-	0x0007	-	Available	Open	-	2000	0x000 raid_000	-
-	0x0008	vol_0008	Available	TPV	-	1024	-	0x01 pool01

1000 Volumes - Page 1/100  
 Jump to Page Next  
 Set Menu

→ The [Rename Logical Volume (Check)] screen appears.

### Caution



If clicking the [Jump to Page], [Next], [Prev], or [Set] button in the following conditions, an error screen appears. This function performs the error checking for each page of the Volume List. Volumes to be renamed are displayed with a yellow background.

- When entering characters other than ASCII code (0x20 – 0x7E)
- When entering the existing volume name

**3** Click the [OK] button.

Volumes to be renamed are displayed with a yellow background.

Please confirm that you wish to perform this operation.

Volume List									
Logical Volume		Status	Volume Type	Encryption	Capacity (MB)	RAID Group		TPP	
Mainframe#	Open#					Name	No.	Name	No.
-	0x0000	vol_0000	Available	SDV	-	1024	0x000 raid_000	-	-
0x0000	-	-	Available	F6427G	-	-	0x010 raid_010	-	-
-	0x0001	vol_0001	Available	Open	-	1024	0x000 raid_000	-	-
-	0x0002	volume_0002	Available	Open	-	2000	0x000 raid_000	-	-
-	0x0003 (1/2)	vol_0003	Available	Open	-	2000/4000	0x000 raid_000	-	-
-	0x0003 (2/2)	-	Available	Open	-	2000/4000	0x000 raid_000	-	-
-	0x0004	vol_0004	Available	SDV	-	1024	0x000 raid_000	-	-
-	0x0005	-	Available	SDPV	-	12288	0x000 raid_000	-	-
0x0001	0x0006	vol_0006	Available	M/V (H)	-	-	0x011 raid_011	-	-
-	0x0007	-	Available	Open	-	2000	0x000 raid_000	-	-
-	0x0008	volume_0008	Available	TPV	-	1024	-	-	0x01 pool01

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→ When the [Rename Logical Volume (Updating Configuration Information)] screen appears and the operation completes successfully, the [Rename Logical Volume (Result)] screen appears.

**4** Click the [OK] button.

Operation completed successfully.

Volume List									
Logical Volume		Status	Volume Type	Encryption	Capacity (MB)	RAID Group		TPP	
Mainframe#	Open#					Name	No.	Name	No.
-	0x0000	vol_0000	Available	SDV	-	1024	0x000 raid_000	-	-
0x0000	-	-	Available	F6427G	-	-	0x010 raid_010	-	-
-	0x0001	vol_0001	Available	Open	-	1024	0x000 raid_000	-	-
-	0x0002	volume_0002	Available	Open	-	2000	0x000 raid_000	-	-
-	0x0003 (1/2)	vol_0003	Available	Open	-	2000/4000	0x000 raid_000	-	-
-	0x0003 (2/2)	-	Available	Open	-	2000/4000	0x000 raid_000	-	-
-	0x0004	vol_0004	Available	SDV	-	1024	0x000 raid_000	-	-
-	0x0005	-	Available	SDPV	-	12288	0x000 raid_000	-	-
0x0001	0x0006	vol_0006	Available	M/V (H)	-	-	0x011 raid_011	-	-
-	0x0007	-	Available	Open	-	2000	0x000 raid_000	-	-
-	0x0008	volume_0008	Available	TPV	-	1024	-	-	0x01 pool01

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→ Returns to the [Menu] screen.

End of procedure

## 5.2.9 Convert Encryption Volume

---

This function encrypts existing Logical Volumes.

### Caution



- This function cannot be used if the encryption mode has not been set.
- Encrypted volumes cannot be changed into non-encrypted volumes.
- Volume encryption may not be suspended once it has begun.
- Snap Data Pool Volumes cannot be encrypted using the [Convert Encryption Volume] function.
- Thin Provisioning Volumes cannot be encrypted using the [Convert Encryption Volume] function.
- During the encryption, the following functions cannot be executed until the encryption is completed.
  - RAID Migration of the target volume
  - Formatting of the target volume
  - Encrypting of the target volume
  - LDE of the RAID Group where the target volume belongs
  - Changing controlling CM-CPU of the RAID Group where the target volume belongs
  - CM Hot Expansion
  - Apply Controller Firmware
  - Apply Disk Firmware
  - Set Configuration
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the volumes that can be encrypted differ depending on the current user account.
  - When logged on using a Total Administrator account, all the volumes assigned to Resource Domains can be encrypted.
  - When logged on using a Resource Domain Administrator account, only the volumes that are assigned to the relevant Resource Domain, and only the volumes that are assigned to the Shared Resource, can be encrypted.



### Note

- Available encryption methods (Fujitsu Original Encryption and AES) can be checked using the [Set Encryption Mode] function. See the default encryption mode setting.
- If an existing volume is encrypted, the progress of encryption may be checked from the [Volume List] function.
- Delete all encrypted and encrypting volumes before switching the encryption setting (Fujitsu Original Encryption or AES) from the [Set Encryption Mode] function.

The procedure to convert into the encryption volume is described below.

## Procedure

- 1 Click [Convert Encryption Volume] under the RAID Management in the [Configuration] menu.

→ The [Convert Encryption Volume (Initial)] screen appears.

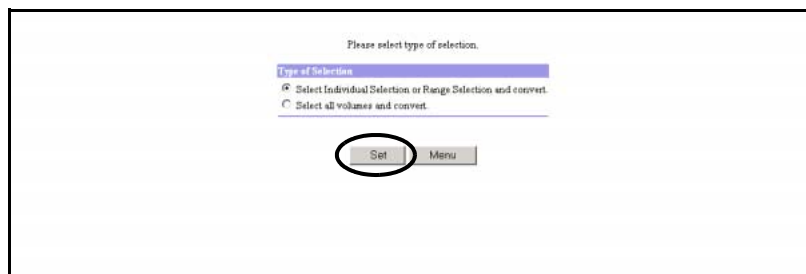
### Caution



In the following cases, an error screen appears. Click the [OK] button to return to the [Menu] screen.

- When there is an abnormal status component in the Controller Enclosure
- When there are no Logical Volumes that can be encrypted.

- 2 Choose a volume selection method, and click the [Set] button.



→ When [Select Individual Selection or Range Selection and convert] is selected, the [Convert Encryption Volume (Select Volume)] screen appears. Move on to [Step 3](#).  
When [Select all volumes and convert] is selected, the [Convert Encryption Volume (Check Execution)] screen appears. Move on to [Step 4](#).

### Caution



The following volumes will not be encrypted even if the [Select all volumes and convert] is selected.

- Volumes which are not in normal status (Rebuilding/Copybacking, etc.)
- Volumes which are being formatted
- Volumes in RAID Migration Operation
- Volumes in the RAID Group where LDE is being executed
- Volumes which are being encrypted
- Snap Data Pool Volumes
- Thin Provisioning Volumes
- Temporary Volumes
- When logged on using a Resource Domain Administrator account, volumes assigned to domains other than the relevant Resource Domain

### 3 Select the volumes or a range of volume to be changed and click the [Set] button.

The three methods below show how to specify the volume to be changed.  
A concatenated volume is changed by the concatenated volume units.

- Individual (multiple selections can be made)  
Select the volume to be encrypted from the Logical Volume list.
- Range (Mainframe)  
Enter the first and last volume numbers to be changed in the From/To fields.  
Volumes with checkboxes in the specified range can be changed.  
Mainframe Volumes, MVV Volumes, and MVV Concatenated Volumes can be changed.
- Range (Open)  
Enter the first and last volume numbers to be changed in the From/To fields.  
Volumes with checkboxes in the specified range can be changed.  
Open Volumes, Snap Data Volumes, Open Concatenated Volumes, MVV Volumes, and MVV Concatenated Volumes can be changed.

Please select volume to convert.

Logical Volume		Status	Volume Type	Encryption	Capacity (MB)	RAID Group	TPP
Mainframe#	Open#	Name				No. Name	No. Name
-	0x0000 (1/3)	vol_0000	Available	Open	-	131072/393216	0x000 raid_000
<input type="checkbox"/>	-	0x0000 (2/3)	Available	Open	-	131072/393216	0x000 raid_000
<input type="checkbox"/>	-	0x0000 (3/3)	Available	Open	-	131072/393216	0x000 raid_000
<input type="checkbox"/>	-	0x0001	vol_0001	Available	SDV	131072	0x002 raid_002
<input type="checkbox"/>	0x0001	-	Available	F6427H	-	-	0x003 raid_003
<input type="checkbox"/>	0x0002	-	Available	F6427K	-	-	0x003 raid_003
<input type="checkbox"/>	0x0004	-	Available	F6427G	-	-	0x003 raid_003
<input type="checkbox"/>	-	0x0008	vol_0008	Available	TPV	1024	-
<input type="checkbox"/>	0x0003	0x000A (1/2)	vol_000A	Available	MVV (KO)	-	0x003 raid_003
<input type="checkbox"/>	0x0005	0x000A (2/2)	-	Available	MVV (KO)	-	0x003 raid_003
<input type="checkbox"/>	-	0x0010	-	Available	SDPV	512	0x000 raid_000
<input type="checkbox"/>	-	0x0011	vol_0011	Available	Open	8192	0x000 raid_000

Part or Range Selection

☐ Part Selection: Select Logical Volume to convert from above list.

☐ Range (Mainframe): From: Logical Volume# 0x To: Logical Volume# 0x

☐ Range (Open): From: Logical Volume# 0x To: Logical Volume# 0x

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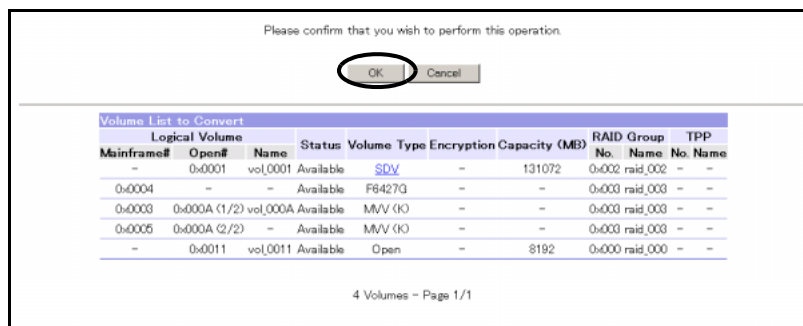
→ The [Convert Encryption Volume (Check Execution)] screen appears.

#### Caution

- When any of the following operations are being executed, encryption cannot be used. (Checkbox is not displayed). Perform the encryption after the executing operation has been completed.
  - Format
  - RAID Migration
  - Logical Volume in the RAID Group where LDE is being executed
- Snap Data Pool Volumes cannot be encrypted. For a Snap Data Pool Volume, a checkbox is not displayed.
- Thin Provisioning Volumes cannot be encrypted. For a Thin Provisioning Volume, a checkbox is not displayed.
- Temporary Volumes cannot be encrypted. For a Temporary Volume, a checkbox is not displayed.

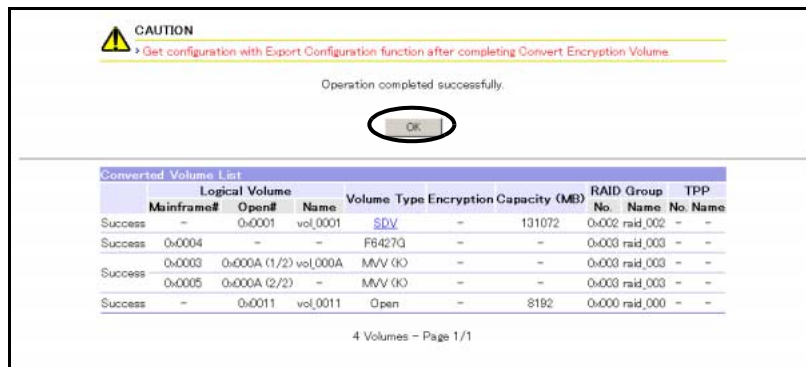
- Only normal status volumes can be encrypted. If a volume cannot be encrypted, a checkbox is not displayed.
- [- (Non-encrypted volume)] is displayed for an encrypting volume until the operation is completed. Checkboxes are not displayed for encrypting volumes.
- The same Logical Volume numbers apply for both Open volumes and Mainframe volumes. When encrypting volumes by the [Range selection] method, pay attention to the radio button setting.
- When clicking the [Set] button in the following cases, an error screen appears.
  - When the [Individual selection] is selected, and no volumes are selected
  - When the [Range] is selected, and nothing is entered in either or both the From or To fields
  - When the [Range] is selected, and something other than hexadecimal numbers are entered in either or both the From or To fields
  - When the [Range] is selected, and there are no volumes that can be encrypted between the range specified with the From and To fields

#### 4 Click the [OK] button to start the encryption process.



→ The [Convert Encryption Volume (Convert Startup Progress)] screen appears.  
When the process is completed, the [Convert Encryption Volume (Startup Results)] screen appears.

5 Click the [OK] button.



→ Returns to the [Menu] screen.

**Caution**

If the startup process is complete, but part of it or all of it has not completed successfully, a message to that effect appears. For volumes that have not completed successfully, clicking the [Detail] link displays detailed error information in another window. In this case, export the log and contact the maintenance engineer.

End of procedure

## 5.2.10 Format Logical Volume

This function formats volumes for use from the host.

Formatting is carried out by each Logical Volume, and finishes quickly. As soon as formatting is complete, the formatted volume can be used.

**Caution**

- The [Format Logical Volume] function can format all volumes displayed for the current user account. If formatting a volume which is in use, the data stored in the volume will be deleted.
- When Thin Provisioning Volumes are formatted, the physical allocating area that is allocated to the target Thin Provisioning Volumes is released.
- If a [GS License] is not registered, Open Volumes, Snap Data Volumes, Snap Data Pool Volumes, Open Concatenated Volumes, and Thin Provisioning Volumes can be formatted. In this case, the [Format Logical Volume (Select Volume Type)] screen does not appear, but the screen jumps to [Format Logical Volume (Select Volume Selection Method)] directly from the [Menu] screen.
- If a volume is created using the [Create Logical Volume] function, the created volume will be formatted automatically. In this case, it is not necessary to format the volume using the [Format Logical Volume] function.

- If a Snap Data Pool Volume is created using the [Set Snap Data Pool] function, the created Snap Data Pool Volume will be formatted automatically. In this case, it is not necessary to format the volume using the [Format Logical Volume] function.
- There is a limit to the capacity of volumes that can be formatted concurrently. If formatting fails, wait until the current format process is complete, and then format the volumes that failed to format.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, volumes that can be formatted differ depending on the current user account.
  - When logged on using a Total Administrator account, all the volumes that are assigned to Resource Domains can be formatted.
  - When logged on using a Resource Domain Administrator account, only the volumes that are assigned to the relevant Resource Domain, and only the volumes that are assigned to the Shared Resource, can be formatted.
- Volumes cannot be formatted under the following conditions:
  - When the relevant volume is being encrypted
  - When the relevant volume is in a RAID Group in which LDE is being performed
  - When the relevant volume status is not "Available" or "Readying"
- If a volume is formatted while any of the following operations are in progress, an error will occur and stop the operation.
  - Advanced Copy
  - Remote Advanced Copy
  - RAID Migration
  - Balancing of Thin Provisioning Volumes

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 Note

- Formatting progress of non-Thin Provisioning Volumes can be checked either using the [Volume List] function or the [RAID Group List] function.
  - Formatting progress of Thin Provisioning Volumes can be checked using the [Thin Provisioning Pool List] function. Note that Thin Provisioning Volume (TPV) formatting progress is displayed as the progress of Thin Provisioning Pool formatting where the TPV is registered.
  - Progress of Advanced Copy and Remote Advanced Copy can be checked using the [Advanced Copy Status] function.
  - Progress of RAID Migration can be checked using the [Progress of RAID Migration] function.
  - Progress of balancing Thin Provisioning Volumes can be checked using the [Progress of Balance Thin Provisioning Volume] function.
-

This section explains procedures to format Logical Volume.

## Procedure

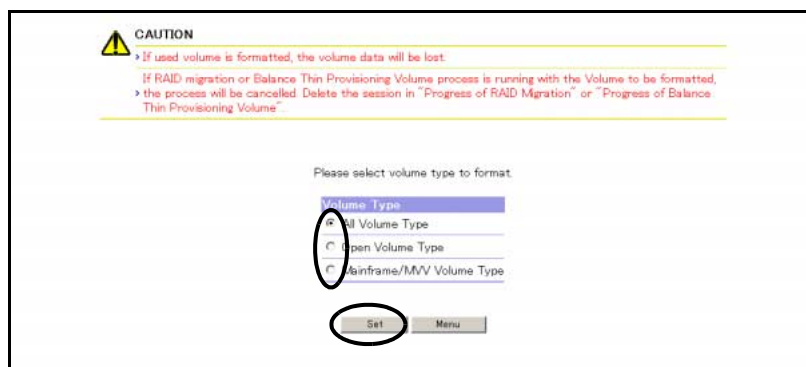
- 1 Click [Format Logical Volume] under the RAID Management (or Thin Provisioning Management) in the [Configuration] menu.  
The initial screen varies depending on the status of "GS Licensed" and "Not GS Licensed".
  - For GS Licensed  
→ The [Format Logical Volume (Select Volume Type)] screen appears.  
Move on to [Step 2](#).
  - For not GS Licensed  
→ The [Format Logical Volume (Select Volume Selection Method)] screen appears.  
Move on to [Step 3](#).

### Caution



- If selecting and formatting a volume which is in use, the data stored in the volume will be deleted.
- If a volume is formatted while any of the following operations are in progress, formatting can be performed, but an error will occur and stop the operation.
  - Advanced Copy
  - Remote Advanced Copy
  - RAID Migration
  - Balancing of Thin Provisioning Volumes

- 2 Select a volume type to format, and click the [Set] button.  
Select from the following three types.
  - All Volume Type  
Format all volumes displayed for the current user account.
  - Open Volume Type  
Format Open Volumes, Snap Data Volumes, Snap Data Pool Volumes, Open Concatenated Volumes, and Thin Provisioning Volumes displayed for the current user account.
  - Mainframe/MVV Volume Type  
Format Mainframe Volumes, MVV Volumes, and MVV Concatenated Volumes displayed for the current user account.

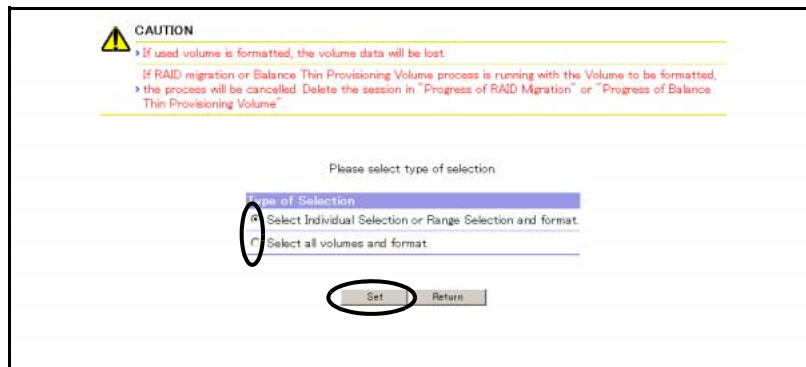


→ The [Format Logical Volume (Select Volume Selection Method)] screen appears.

**3** Select a volume selection method, and click the [Set] button.

Select from the following.

- Select Individual Selection or Range Selection, and format.  
→ The [Format Logical Volume (Select Volume)] screen appears.  
Move on to [Step 4](#).
- Select all volumes and format.  
→ The [Format Logical Volume (Check Format Execution)] screen appears.  
Move on to [Step 5](#).



**4** Select volumes to format, and click the [Set] button.

The three methods below show how to specify the volume to be formatted.

A concatenated volume is formatted by the concatenated volume units.

- Individual Selection (Multiple selections can be made)  
Select the volume to format from the volume list.
- Range (Mainframe)  
Enter the first and last volume numbers to be formatted in the From/To fields.  
Volumes with checkboxes in the specified range can be formatted.  
Mainframe Volumes, MVV Volumes, and MVV Concatenated Volumes can be formatted.
- Range (Open)  
Enter the first and last volume numbers to be formatted in the From/To fields.  
Volumes with checkboxes in the specified range can be formatted.  
Open Volumes, Snap Data Volumes, Snap Data Pool Volumes, Open Concatenated Volumes, Thin Provisioning Volumes, MVV Volumes, and MVV Concatenated Volumes can be formatted.

**CAUTION**

> If used volume is formatted, the volume data will be lost.

If RAID migration or Balance Thin Provisioning Volume process is running with the Volume to be formatted, the process will be cancelled. Delete the session in "Progress of RAID Migration" or "Progress of Balance Thin Provisioning Volume".

Please select volume to format

Logical Volume List											
Logical Volume			Status	Volume Type	Encryption	Capacity (MB)	RAID Group			TPP	
Mainframe#	Open#	Name					No.	Name	No.		Name
<input type="checkbox"/>	-	0x0000 (1/3)	vol_0000	Available	Open	-	131072/393216	0x000	raid_000	-	-
<input type="checkbox"/>	-	0x0000 (2/3)	-	Available	Open	-	131072/393216	0x000	raid_000	-	-
<input type="checkbox"/>	-	0x0000 (3/3)	-	Available	Open	-	131072/393216	0x000	raid_000	-	-
<input type="checkbox"/>	0x0000	-	-	Available	F6427G	-	-	0x001	raid_001	-	-
<input type="checkbox"/>	-	0x0001	vol_0001	Available	SDV	-	131072	0x002	raid_002	-	-
<input type="checkbox"/>	0x0001	-	-	Available	F6427H	-	-	0x003	raid_003	-	-
<input type="checkbox"/>	0x0002	-	-	Available	F6427K	-	-	0x003	raid_003	-	-
<input type="checkbox"/>	0x0004	-	-	Available	F6427G	-	-	0x003	raid_003	-	-
<input type="checkbox"/>	-	0x0008	vol_0008	Available	TPV	-	1024	-	-	0x01	pool_01
<input type="checkbox"/>	0x0003	0x000A (1/2)	vol_000A	Available	M/V (K)	-	-	0x003	raid_003	-	-
<input type="checkbox"/>	0x0005	0x000A (2/2)	-	Available	M/V (K)	-	-	0x003	raid_003	-	-
<input type="checkbox"/>	-	0x000B	vol_000B	Available	Open	-	8192	0x002	raid_002	-	-
<input type="checkbox"/>	-	0x0010	-	Available	SDPV	-	512	0x000	raid_000	-	-

**Part or Range Selection**

☒ Individual Selection: Select Logical Volume to format from above list.

☐ Range (Mainframe): From: Logical Volume# 0x To: Logical Volume# 0x

☐ Range (Open): From: Logical Volume# 0x To: Logical Volume# 0x

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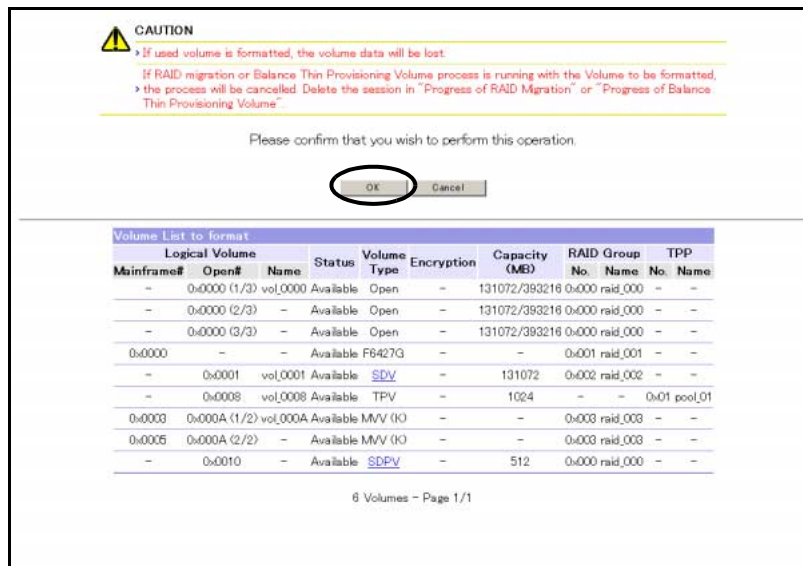
→ The [Format Logical Volume (Check Format Execution)] screen appears.

**Caution**

When clicking the [Set] button in the following conditions, an error screen appears.

- No volumes are selected
- One field or both fields of the Range (From and/or To) has/have not been entered
- Volume number in From or To is out of range for the volume range specification to format
- There are no formatting target volumes in the range (From and To)

5 Click the [OK] button.



**Caution**



All specified Logical Volumes are formatted by clicking the [OK] button. If formatting a volume which is in use, the data stored in the volume will be deleted.

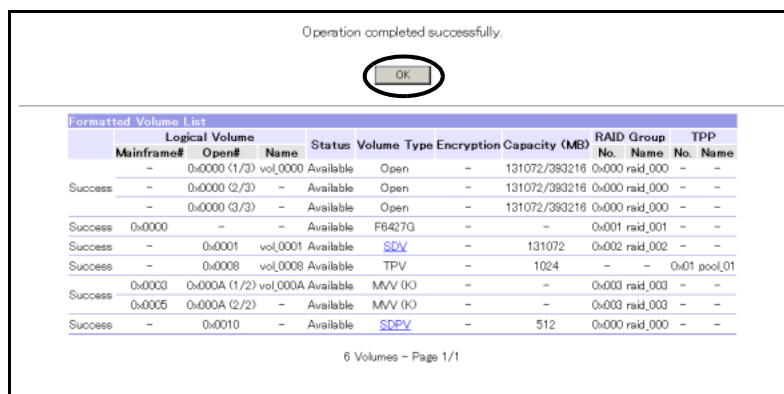
→ Formatting is started and the [Format Logical Volume (Starting Formatting Process)] screen appears.  
 The [Format Logical Volume (Complete Starting Formatting Process)] screen appears after the starting formatting process has been completed.



**Note**

When formatting both Thin Provisioning Volumes and non-Thin Provisioning Volumes, the [Format Logical Volume (Starting Formatting Process)] screen for each volume type is displayed.

6 Click the [OK] button.



→ Returns to the [Menu] screen.

**Caution**



- When the format ends abnormally or ends partially abnormally, an error screen appears. Click the [OK] button to return to the [Menu] screen.
- When exceeding the maximum capacity of volumes that can be formatted concurrently, a message to that effect appears. Wait until the current format process is complete, and then format the volumes that failed to format. When Thin Provisioning Volumes fail to format, "Unknown" is displayed as the result of the format starting process. When volumes other than Thin Provisioning Volumes fail to format, "Error" or "Not formatted" is displayed as the result of the format starting process.

End of procedure

## 5.2.11 Initialize Snap Data Volume

This screen is used to initialize a Snap Data Volume (SDV) for use as a SnapOPC/SnapOPC+ copy destination.

SnapOPC/SnapOPC+ are Advanced Copy functions. The [Create Logical Volume] function is used to create a Snap Data Volume as a SnapOPC/SnapOPC+ copy destination. The Snap Data Volume contains both data space and copy control information.

If an operational error or other mistake causes a large amount of data to be written by the host to the Snap Data Volume, the capacity of the SnapOPC/SnapOPC+ copy destination may prove insufficient. When the amount of data written to a Snap Data Volume exceeds its capacity, the ETERNUS DX400/DX8000 series reports this to the host, and data writing is disabled. This function may also be used to reinitialize a Snap Data Volume when this has occurred.

The data space becomes unavailable after the Snap Data Volume is initialized.

**Caution**



- If a Snap Data Volume is initialized, access to the data in the volume is lost. Make sure to backup any required data beforehand.
- In the following cases, initialization of Snap Data Volume cannot be performed by this function.
  - When there is no volume to be initialized
  - When the volume to be initialized is not a Snap Data Volume
  - When the status of the volume to be initialized is not Available
  - When a copy session is already set for the volume to be initialized
  - When the LDE is operating in the RAID Group to which the initialization target volume belongs
  - When the [Initialize Snap Data Volume] is operating in the ETERNUS DX400/DX8000 series
- Only one Snap Data Volume may be initialized at a time.

- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Snap Data Volumes that can be initialized differ depending on the current user account.
  - When logged on using a Total Administrator account, all the Snap Data Volumes that are assigned to Resource Domains can be initialized.
  - When logged on using a Resource Domain Administrator account, only the Snap Data Volumes that are assigned to the relevant Resource Domain, and only the Snap Data Volumes that are assigned to the Shared Resource, can be initialized.



**Note**

When initializing a Snap Data Volume (SDV), the space allocated to the SDV from the Snap Data Pool Volume (SDPV) is canceled.

This section describes the procedures to initialize the Snap Data Volume.

### Procedure

- 1 Click [Initialize Snap Data Volume] under the RAID Management in the [Configuration] menu.

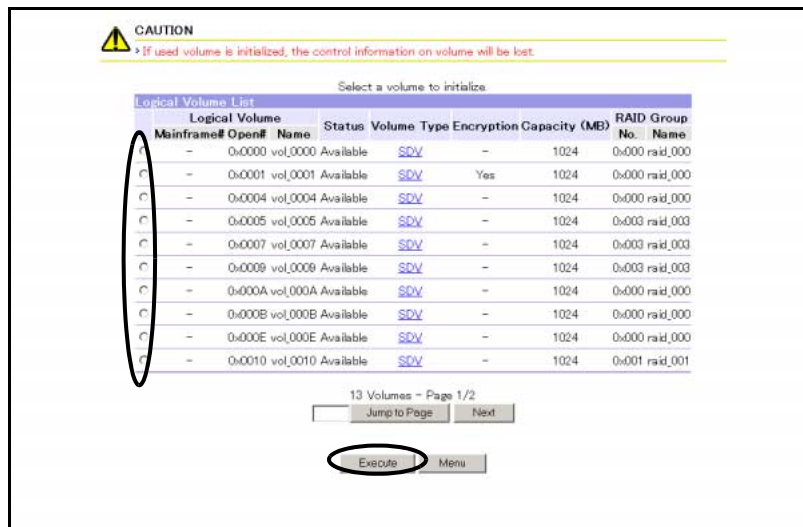
→ The [Initialize Snap Data Volume (Initial)] screen appears.

### Caution



- In the following cases, the Snap Data Volume cannot be initialized.  
When a message to that effect appears, return to the [Menu] screen by clicking the [OK] button.
  - When there is no volume to be initialized
  - When the LDE is operating in the RAID Group to which the initialization target volume belongs
- In the following cases, volumes cannot be selected (The radio button is not displayed).
  - When the status of the volume to be initialized is not Available
  - When the SnapOPC/SnapOPC+ session is set
- When the [Initialize Snap Data Volume] is operating in the ETERNUS DX400/DX8000 series, the volume progress screen during the initialization is displayed.  
Only one Snap Data Volume can be initialized at a time.

## 2 Select volumes to initialize, and click the [Execute] button.



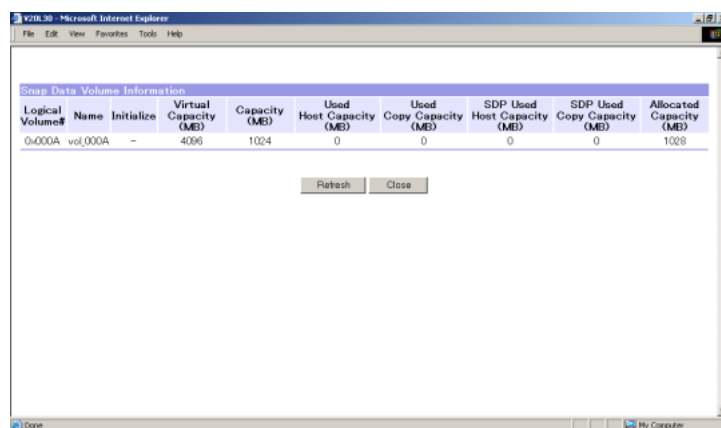
→ The [Initialize Snap Data Volume (Check)] screen appears.

### Caution

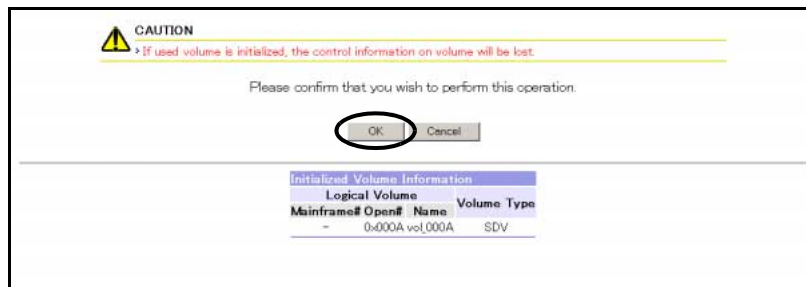
- If a Snap Data volume in use is initialized, its volume control information will be deleted.
- If the [Execute] button is clicked before selecting Snap Data volumes to be initialized, an error screen appears.

### Note

When the [SDV] link in the [Volume Type] is clicked, the [Initialize Snap Data Volume (Snap Data Volume Details)] screen appears in another window.



**3** Click the [OK] button.

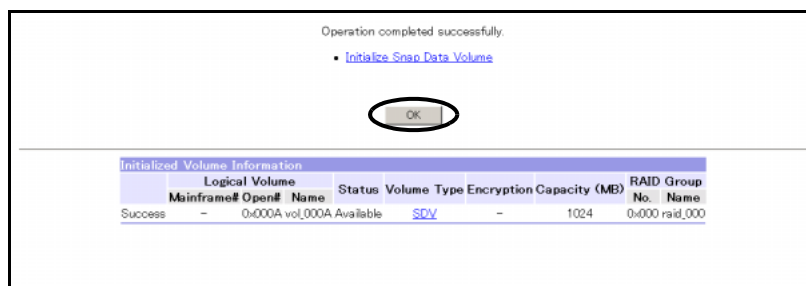


**Caution**

When clicking the [OK] button, specified Snap Data volumes are initialized. If a Snap Data volume in use is initialized, its volume control information will be deleted.

→ Volume initialization is started and the [Initialize Snap Data Volume (Check Progress)] screen appears.  
When the initialization is successfully completed, the [Initialize Snap Data Volume (Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

**Note**

- Click the [Initialize Snap Data Volume] link to return to the [Initialize Snap Data Volume (Initial)] screen.
- When the [SDV] link in the [Volume Type] is clicked, the [Initialize Snap Data Volume (Snap Data Volume Details)] screen appears in another window.

End of procedure

## 5.2.12 RAID Migration

This function migrates a volume in a RAID Group or Thin Provisioning Pool (TPP) to free space in another RAID Group or TPP.

The [RAID Migration] function enables load-balancing of host access as well as RAID level conversion by moving volumes. When the migration source and destination are Open Volumes, the capacity can be expanded by setting the volume capacity of the destination using RAID Migration.

This function has an automatic function that creates a new Logical Volume, formats, and establishes a host interface. Because data in the volume will be moved to the new volume, users are allowed to access the data anytime without being affected by the migration. After RAID Migration has completed, the migration source volume will be deleted.

### ■ Migration Type

The combinations for volume types that can be migrated (migration source volume → migration destination volume) are as follows.

- Open → Open
- Open → TPV (\*1)
- TPV → Open (\*2)
- TPV → TPV

\*1: For [Open] to [TPV] migration, 100% of the logical capacity for the Open Volume is used as the physical allocating capacity of the TPV. When expanding the relevant TPV capacity using the [Thin Provisioning Volume Expansion] function after migration, physical allocation is performed only to the capacity that is used by the Thin Provisioning function for the expanded area.

\*2: For [TPV] to [Open] migration, 100% of the logical capacity for the TPV is used as the logical capacity (physical allocating capacity) of Open Volumes.

### ■ Migration Source Volume Requirements

- The volume type is [Open] or [TPV]
- The [Status] is [Available]
- The volume is not being formatted (when the migration target volume type is Open)
- RAID Migration is not being performed (the target volume is not specified as a migration source or migration destination of existing RAID Migration)
- An Advanced Copy is not being performed (the target volume is not specified as a copy source or copy destination of existing Advanced Copy)
- A Remote Advanced Copy is not being performed (the target volume is not specified as a copy source or copy destination of existing Remote Advanced Copy)
- Balancing TPV is not being performed
- The RAID Group to which the volume belongs is not in the LDE process
- Encryption is not being performed
- The target volume is not a concatenated volume
- The total capacity of the volumes to be migrated, the capacity of the volumes being migrated, and the capacity of TPV being balanced does not exceed 8.0TB (8,388,608MB)

#### ■ Migration Destination RAID Group Requirements

- A RAID Group which is not used or a RAID Group with an Open Volume, Snap Data Volume, or Snap Data Pool Volume created
- A RAID Group that is not registered in the Thin Provisioning Pool
- If volumes are created in the RAID Group, the number of volumes in the RAID Group is less than 128
- A RAID Group that is not registered as the REC Disk Buffer
- If a RAID Group is not used, [DVCF Mode] is [OFF] or [-]
- The [Status] of the RAID Group is [Available] or [Present]
- The RAID Group is not blocked
- The unused capacity of the RAID Group is equal or larger than the volume capacity of the migration source (\*1)
- Not the RAID Group to which the migration source volume belongs
- The RAID Group is not in the LDE process
- The migration destination RAID Group is in the same Resource Domain as the migration source volume (\*2)

#### ■ Migration Destination Thin Provisioning Pool (TPP) Requirements

- The [Status] is [Available]
- The TPP capacity is equal or larger than the migration source volume capacity (\*1)
- The migration source volume capacity is smaller than the maximum TPP capacity for each model
- Not the TPP to which the migration source volume belongs
- The migration destination TPP is in the same Resource Domain as the migration source volume (\*2)
- If the migration source is an encrypted volume (\*3), the encryption status of TPP is "Encrypted"

\*1: When the migration source is a Thin Provisioning Volume, the migration source volume capacity indicates the Used Capacity (physical capacity allocated from TPP).

\*2: When the Resource Domain is registered, RAID Migration can be performed between the migration source and the destination RAID Groups or TPPs that are assigned to the same Resource Domain. When the migration source volume is a Shared Resource (in which the Resource Domain is "Share"), RAID Migration can be performed when the Resource Domain of the migration destination RAID Group or TPP is also a Shared Resource.

\*3: When the migration source is a Thin Provisioning Volume, the encrypted volume is a Thin Provisioning Volume that is created in an encrypted TPP.

## ■ Restrictions during RAID Migration

The migration source and destination volumes cannot both be used for the following operations.

Operation	Migration Type			
	Open → Open	Open → TPV	TPV → Open	TPV → TPV
Setting Advanced Copy session	Not Available	Not Available	Not Available	Not Available
Setting Remote Advanced Copy session	Not Available	Not Available	Not Available	Not Available
Formatting volumes	Not Available (*1)	Not Available (*1)	Not Available (*1)	Not Available (*1)
LUN Concatenation	Not Available	Not Available TPV is not supported	Not Available TPV is not supported	–
Encryption	Not Available	Not Available TPV is not supported	Not Available TPV is not supported	–
Expanding TPV capacity	–	Not Available Open is not supported	Not Available Open is not supported	Not Available
Balancing TPV	–	Not Available Open is not supported	Not Available Open is not supported	Not Available
Deleting volumes	Not Available	Not Available	Not Available	Not Available
Preventive Maintenance of disks	Not Available	Not Available	Not Available	Not Available
Changing Controlling CM of RAID Group	Not Available	Not Available	Not Available	Not Available
Changing Resource Domain of RAID Group	Not Available	Not Available	Not Available	Not Available
Concurrent firmware loading	Not Available	Not Available	Not Available	Not Available
Reducing Advanced Copy Table Size	Not Available	Not Available	Not Available	Not Available
Set Configuration (Restore mode)	Not Available (*1)	Not Available	Not Available (*1)	Not Available
CM Hot Expansion	Not Available	Not Available	Not Available	Not Available

Not Available: Functions that cannot be used

–: Functions that are not supported

\*1: When these operations are performed during migration, an error occurs and the RAID Migration is stopped.

■ The maximum number of volumes / The maximum capacity of Thin Provisioning Volumes for each model

RAID Migration creates a new volume. The following table shows the maximum number of volumes and the maximum capacity of Thin Provisioning Volumes which can be created for each model.

For the maximum number of volumes for each RAID Group, refer to ["The maximum number of volumes for each RAID Group" \(page 168\)](#).

Model	The maximum number of volumes (Open Volume + Snap Data Volume + Snap Data Pool Volume + Thin Provisioning Volume)	The maximum capacity of Thin Provisioning Volumes (TB) (The total capacity of Thin Provisioning Volumes)
ETERNUS DX410	2048	312
ETERNUS DX440	4096	630
ETERNUS DX8100	3712 (4096) (*1)	630
ETERNUS DX8400	16384	1024
ETERNUS DX8700	16384	1024

\*1: The maximum number of volumes when creating Thin Provisioning Volumes. However, the actual number of volumes that can be created is less than the maximum value as specified by the Thin Provisioning function.

**Caution** 

- In addition to ["Migration Source Volume Requirements" \(page 214\)](#), ["Migration Destination RAID Group Requirements" \(page 215\)](#), and ["Migration Destination Thin Provisioning Pool \(TPP\) Requirements" \(page 215\)](#), the following requirements must be met to execute migration.

Click the [OK] button to return to the [Menu] screen if a message appears, depending on the status of the ETERNUS DX400/DX8000 series.

- The total number of active migrations and TPV Balancing must be 31 or less
- The free space available for RAID Migration must be larger than the total capacity of all the volumes available for RAID Migration
- The maximum number of volumes are not created in ETERNUS DX400/DX8000 series.
- When Resource Domains are registered in ETERNUS DX400/DX8000 series, work volumes can be assigned to the Resource Domain to which the migration source volume belongs (\*1)

\*1: When Resource Domains are registered, and if the sufficient number of Assignable Resources for Logical Volumes does not exist in the Resource Domain to which the migration source volume belongs, migration cannot be executed. The number of Logical Volumes that have been assigned to the relevant Resource Domain and the number of Assignable Resources can be checked using the [Resource Domain List] function.

- When the volume capacity of the new location is expanded with RAID Migration, it is necessary for the server to recognize the expanded volume capacity after the migration is complete. Refer to each OS or the file system manual for operation from the server.

- In order to recover normal status (the status before failure), the device configuration information may be needed. After RAID Migration has been completed, use the [Export Configuration] function to get the configuration information.
- When Resource Domains are registered in ETERNUS DX400/DX8000 series, volumes that can be migrated differ depending on the current user account.
  - When logged on using a Total Administrator account, all the volumes that are assigned to Resource Domains can be migrated.
  - When logged on using a Resource Domain Administrator account, only the volumes that are assigned to the relevant Resource Domain, and only the volumes that are assigned to the Shared Resource, can be migrated.
- If the migration source and/or migration destination volume type is TPV, volume capacity expansion using RAID Migration is not available. Use the [Thin Provisioning Volume Expansion] function before starting RAID Migration or after the migration process completes to expand the capacity of the TPV.
- If an unencrypted volume is migrated in an encrypted TPP, the volume cannot be returned to unencrypted status.
- For restrictions during RAID Migration, refer to ["Restrictions during RAID Migration" \(page 216\)](#).

---

 Note

- Migration progress can be checked with the [Progress of RAID Migration] function.
- Note that the following information is not changed after migration.
  - Logical Volume number
  - Logical Volume name

---

The following explains the RAID Migration setting procedures.

---

**Procedure**

- 1 Click [RAID Migration] under the RAID Management (or Thin Provisioning Management) in the [Configuration] menu.
  - The [RAID Migration (Initial)] screen appears.  
The initial screen displays the data download screen for each copy session.  
When the data download is completed, the [RAID Migration (Select Migration Source Volume)] screen appears.

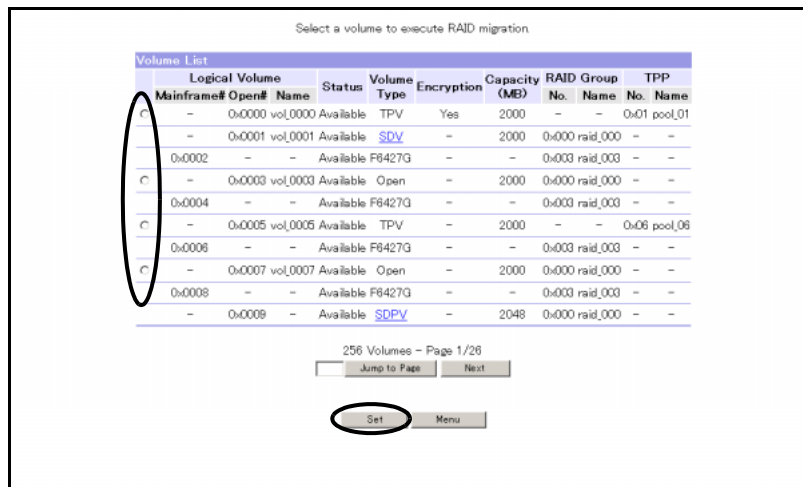
---

**Caution** 

When the migration cannot be executed, a message to that effect is displayed. Click the [OK] button to return to the [Menu] screen.

---

## 2 Select volumes to perform migration, and click the [Set] button.



→ The screen to be displayed differs depending on whether the RAID Group or TPP can be selected as the migration destination.

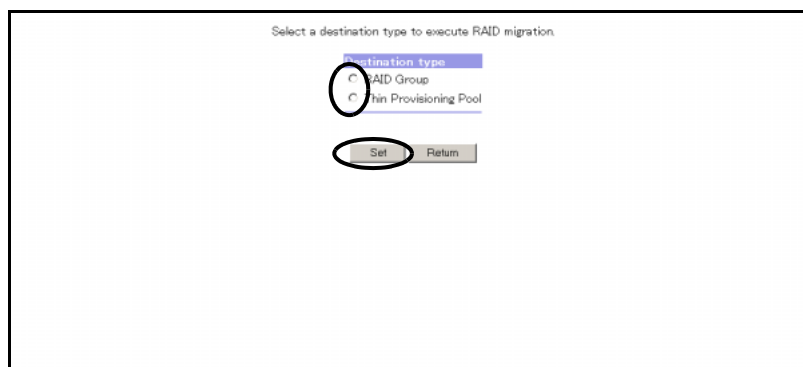
- When RAID Groups and TPPs can both be selected as the migration destination:  
→ The [RAID Migration (Select Migration Destination Type)] screen appears. Move on to [Step 3](#).
- When only RAID Groups can be selected:  
→ The [RAID Migration (Select Migration Destination RAID Group)] screen appears. Move on to [Step 4](#).
- When only TPPs can be selected:  
→ The [RAID Migration (Select Migration Destination Thin Provisioning Pool)] screen appears. Move on to [Step 6](#).

### Caution

When the [Set] button is clicked in the following conditions, an error screen appears.

- When no volumes are selected
- When no RAID groups and TPPs can be selected as migration destinations

## 3 Select the migration destination type, and click the [Set] button.



→ The screen to be displayed differs depending on the selected migration destination type.

- When selecting "RAID Group":  
→ The [RAID Migration (Select Migration Destination RAID Group)] screen appears. Move on to [Step 4](#).
- When selecting "Thin Provisioning Pool":  
→ The [RAID Migration (Select Migration Destination Thin Provisioning Pool)] screen appears. Move on to [Step 6](#).

**Caution**



When the [Set] button is clicked without selecting a migration destination type, an error screen appears.

**4** Select the destination RAID Group for migration, and click the [Set] button.

Select a RAID Group to create a migration volume.

RAID Group No.	Name	RAID Level	Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No.	Name
0x000 raid_000		RAID5	Available	CM#0-CPU#0	149504	-	Open, SDPV	-	-
0x001 raid_001		RAID1	Available	CM#3-CPU#1	149504	OFF	Mainframe	-	-
0x002 raid_002		RAID1+0	Available	CM#1-CPU#0	1046528	-	SDV	-	-
0x003 raid_003		RAID1	Available	CM#2-CPU#1	971776	OFF	Mainframe, MVV	-	-
0x004 raid_004		RAID1+0	Available	CM#2-CPU#0	1121280	-	-	-	-
0x005 raid_005		RAID1	Available	CM#1-CPU#1	1943552	OFF	-	-	-
0x006 raid_006		RAID5	Available	CM#3-CPU#0	598016	-	-	-	-
0x007 raid_007		RAID1+0	Available	CM#0-CPU#1	1196032	-	-	-	-
0x008 raid_008		RAID1	Available	CM#0-CPU#0	149504	OFF	-	-	-
0x009 raid_009		RAID1+0	Available	CM#3-CPU#1	149504	-	-	-	-

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Jump to Page Next

Set Return

→ The [RAID Migration (Select Migration Destination Area)] screen appears.

**Caution**



- When the [Set] button is clicked without selecting a RAID Group, an error screen appears.
- If there is no free space to migrate in the selected RAID Group, a message to that effect is displayed.

**5** Select the migration destination area, enter the capacity and click the [Set] button.

Select a free area to create a migration volume.

Source Logical Volume	Volume Type	Encryption	Capacity (MB)	RAID Group No.	Name	TPP No.	Name
Mainframe# Open# Name							
- 0x0003 vol_0003	Open	-	2000	0x000 raid_000	-	-	-

↓

RAID Group#0x004 : raid_004 : RAID1+0	Logical Volume	Volume Type	Encryption	Capacity (MB)
	Mainframe# Open# Name			
	- Free	-	-	1121280

Destination Capacity  
Capacity: 2000 MB

Set Return

→ The [RAID Migration (Check Setting)] screen appears. Move on to [Step 7](#).

**Caution** 

- When clicking the [Set] button in the following conditions, an error screen appears.
  - When migration destination area is not selected
  - When the "Capacity" is not entered or non-numeric characters are entered in the "Capacity"
  - When the entered value of "Capacity" is less than the migration source volume capacity
  - When the entered value of "Capacity" is larger than the free space of the migration destination RAID Group
  - When the entered value of "Capacity" is 8.0TB (8,388,608MB) or larger
- The volume number of the migration destination volume will be the same as the volume number of the migration source volume. Therefore, a volume (work volume) temporarily used as a working volume will be created. This work volume's volume number is displayed as a [Caution] under the volume information.

 **Note**

Capacity expansion cannot be performed when the migration source volume type is "TPV". Therefore, the "Destination Capacity" is displayed only when the migration source volume type is "Open".

**6** Select the destination TPP for migration, and click the [Set] button.

Select a Thin Provisioning Pool to create a migration volume

Thin Provisioning Pool List										
No.	Name	Disk Type	Reliability	Status	Capacity (MB)	Used Capacity (MB)	Status	Notice (%)	Warning	Caution
C-00	pool_00	Online	High	Available	3360768	0	Normal	90	-	-
C-01	pool_01	Online	High	Available	3360768	134400	Normal	90	75	Yes
C-02	pool_02	Online	High	Available	3360768	134400	Normal	90	75	Yes
C-03	pool_03	Online	High	Available	3360768	134400	Normal	90	75	Yes
C-04	pool_04	Online	High	Available	3360768	134400	Normal	90	75	Yes
C-05	pool_05	Online	High	Available	3360768	134400	Normal	90	75	Yes
C-06	pool_06	Nearline	Medium	Available	29578752	26880	Normal	90	80	-
C-07	pool_07	Nearline	Medium	Available	29578752	26880	Normal	90	80	-
C-08	pool_08	Nearline	Medium	Available	29578752	26880	Normal	90	80	-
C-09	pool_09	Nearline	Medium	Available	29578752	26880	Normal	90	80	-

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→ The [RAID Migration (Check Setting)] screen appears.

**Caution** 

- When the [Set] button is clicked in the following conditions, an error screen appears.
  - When the TPP is not selected
  - When there is no free area (physical allocating capacity) that can be used for migration in the selected TPP

## 7 Click the [OK] button.

- When migrating Open Volume → Open Volume:

Now begins the RAID migration. Are you sure?

Source Logical Volume						
Logical Volume	Volume	Type	Encryption	Capacity (MB)	RAID Group	TPP
Mainframe#	Open#	Name			No.	Name
-	0x0003	vol_0003	Open	-	2000	0x000 raid_000

↓

Destination Logical Volume						
Logical Volume	Volume	Type	Encryption	Capacity (MB)	RAID Group	TPP
Mainframe#	Open#	Name			No.	Name
-	0x0003	vol_0003	Open	-	4000	0x004 raid_004

Note) Logical Volume#0x0101 will be created as a work volume.

- When migrating TPV → TPV:

**CAUTION**

Once Thin Provisioning Volume is encrypted, it cannot be decrypted.

The Thin Provisioning Pool will turn into alarm status after completing RAID migration. Expand the Thin Provisioning Pool capacity.

Now begins the RAID migration. Are you sure?

Source Logical Volume						
Logical Volume	Volume	Type	Encryption	Capacity (MB)	RAID Group	TPP
Mainframe#	Open#	Name			No.	Name
-	0x0005	vol_0005	TPV	-	2000	0x06 pool_06

↓

Destination Logical Volume						
Logical Volume	Volume	Type	Encryption	Capacity (MB)	RAID Group	TPP
Mainframe#	Open#	Name			No.	Name
-	0x0005	vol_0005	TPV	Yes	2000	0x04 pool_04

Note) Logical Volume#0x0002 will be created as a work volume.

→ The screen to be displayed differs depending on the selected migration type.

- When migrating Open Volume → Open Volume:
  - The [RAID Migration (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [RAID Migration (Setting Result/Format Migration)] screen is displayed. Creation of a work volume (temporarily created volume as a working volume) to execute migration is complete at this point. Since the formatting starts subsequently, the [RAID Migration (Format Progress)] screen appears. When the format starting process is complete, RAID Migration starts, and the [RAID Migration (Setting Result)] screen appears.
- When migrating TPV → Open Volume:
  - The [RAID Migration (RAID Migration Starting Progress)] screen appears. The creation and format of a work volume (temporarily created volume as a working volume) to execute migration starts at this point. When the format starting process is complete, RAID Migration starts, and the [RAID Migration (Setting Result)] screen appears.
- When migrating Open Volume → TPV, TPV → TPV:
  - The [RAID Migration (RAID Migration Starting Progress)] screen appears. The creation of a work volume (temporarily created volume as a working volume) to execute migration starts at this point. When volume creation is complete, RAID Migration starts, and the [RAID Migration (Setting Result)] screen appears.

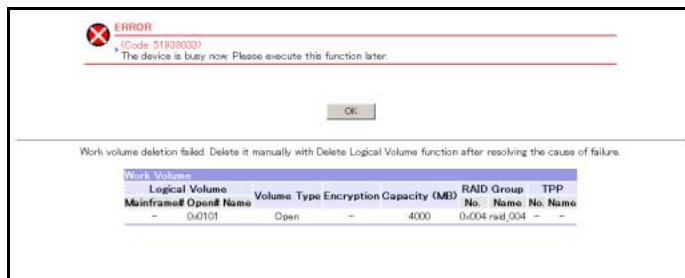
**Caution** 

- In the following cases, it is necessary to export log information and contact your maintenance engineer.  
After contacting your maintenance engineer, take appropriate measures.

- When an error is detected during the RAID Migration start process and the process cannot be continued:  
→ The [RAID Migration (Start Deleting Work Volume)] screen appears.  
Click the [OK] button to delete the work volume.



- When a process failure occurs during deletion of the work volume:  
→ The [RAID Migration (Start Deleting Work Volume Failure)] screen appears.  
Click the [OK] button to delete the work volume using [Delete Logical Volume] function.



- If the migration destination is TPP, and the used capacity of the relevant TPP is in alarm state (exceeding "Caution" or "Warning" threshold) after the migration has been completed, a message to recommend expanding the relevant TPP capacity appears.
- If an unencrypted volume is migrated to an encrypted TPP, the volume cannot be returned to unencrypted status. When performing migration from unencrypted volumes to encrypted volumes, the caution message is displayed.

 **Note**

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, work volume is assigned to the same Resource Domain as the migration source volume.

**8** Click the [OK] button.

- When migrating Open Volume → Open Volume:

**CAUTION**  
 > Get configuration with Export Configuration function after completing RAID migration.  
 RAID migration has been started.  
[Link to related function](#)  
[Progress of RAID Migration](#)

OK

Source Logical Volume						
Logical Volume	Volume	Type	Encryption	Capacity (MB)	RAID Group	TPP
Mainframe#	Open#	Name			No.	Name
-	0x0003	vol_0003	Open	-	2000	0x000 raid_000

↓

Destination Logical Volume						
Logical Volume	Volume	Type	Encryption	Capacity (MB)	RAID Group	TPP
Mainframe#	Open#	Name			No.	Name
-	0x0003	vol_0003	Open	-	4000	0x004 raid_004

Note) Logical Volume#0x0101 will be created as a work volume.

- When migrating TPV → TPV:

**CAUTION**  
 > Get configuration with Export Configuration function after completing RAID migration.  
 > Once Thin Provisioning Volume is encrypted, it cannot be decrypted.  
 > The Thin Provisioning Pool will turn into alarm status after completing RAID migration. Expand the Thin Provisioning Pool capacity.

RAID migration has been started.  
[Link to related function](#)  
[Progress of RAID Migration](#)

OK

Source Logical Volume						
Logical Volume	Volume	Type	Encryption	Capacity (MB)	RAID Group	TPP
Mainframe#	Open#	Name			No.	Name
-	0x0005	vol_0005	TPV	-	2000	0x06 pool_06

↓

Destination Logical Volume						
Logical Volume	Volume	Type	Encryption	Capacity (MB)	RAID Group	TPP
Mainframe#	Open#	Name			No.	Name
-	0x0005	vol_0005	TPV	Yes	2000	0x04 pool_04

Note) Logical Volume#0x0002 will be created as a work volume.

→ Returns to the [Menu] screen.

**Caution**

- For RAID Migration, ETERNUS DX400/DX8000 series formats work volumes. If the maximum capacity of volumes that can be formatted the same time is exceeded, formatting fails, and a message to that effect appears when starting the format process. Delete the work volume. Wait until the current format process is complete, and then perform the [RAID Migration] again.
- In order to recover normal status (the status before failure), the configuration information of the ETERNUS DX400/DX8000 series may be needed. After RAID Migration has been completed, use the [Export Configuration] function to export the configuration information.



Note

Clicking the [Progress of RAID Migration] link enables checking the progress status of the migration.

End of procedure

### 5.2.13 Progress of RAID Migration

On this screen, the progress status of RAID Migration is displayed. This function can be used to check the status of RAID Migration. Also, unintended volume migration can be stopped using this function.

The operation status displayed in the [RAID Migration Progress List] is shown below.

Operation status of RAID Migration		Display of [RAID Migration Progress List]	Required actions
Normal	In operation	The status is displayed in the list.	Unnecessary
	Complete	The status is not displayed in the list. (Deleted from the list after completion.)	Unnecessary
Errors detected		The status is displayed in the list.	Delete the work volume manually using this function.

#### Caution

- In order to recover normal status (the status before failure), the configuration information of the ETERNUS DX400/DX8000 series may be needed. After RAID Migration has been completed (\*1), use the [Export Configuration] function to get the configuration information.

\*1: This indicates that normal RAID Migrations have been completed, and RAID Migrations that terminated due to error are deleted completely.

- When Resource Domains are registered in ETERNUS DX400/DX8000 series, the progress status of RAID Migration which can be displayed, differs depending on the current user account.
  - When logged on using a Total Administrator account, the progress status of the RAID Migration for all the volumes that are assigned to Resource Domains can be displayed.
  - When logged on using a Resource Domain Administrator account, only the progress status of RAID Migrations for volumes that are assigned to the relevant Resource Domain and the Shared Resource can be displayed.



Note

- Use the [RAID Migration] function to perform the actual migration.
- Up to 32 migrations including TPV balancing can be performed at the same time. Refer to the [Progress of Balance Thin Provisioning Volume] function for progress status of TPV balancing.
- Once the migration has stopped, accessing the data stored in the migration source volume is possible.

The following describes procedures to display the progress of RAID Migration.

The following operations/settings are available on this screen.

- [Check Migration Progress](#)  
Check the status and progress of the RAID Migration
- [Stop Migration](#)  
Stop the selected RAID Migration and delete the work volume.

Procedures for each operation are described below.

### 5.2.13.1 Check Migration Progress

#### Procedure

- 1 Click [Progress of RAID Migration] under the RAID Management (or Thin Provisioning Management) in the [Configuration] menu.  
→ The [Progress of RAID Migration (Initial)] screen appears.

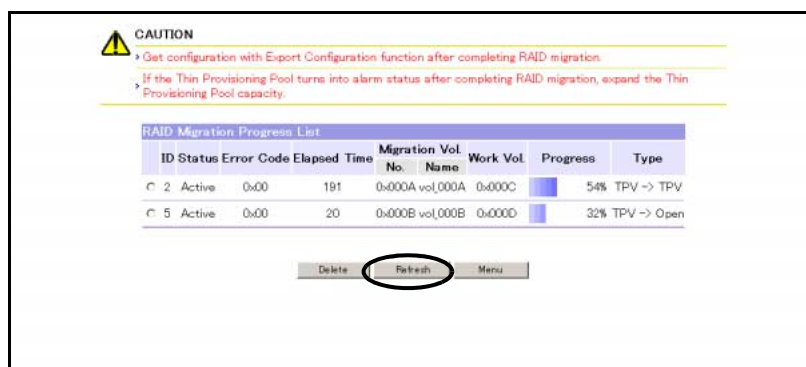
#### Caution

When the device is busy (retrieving progress data) or when migration is not performed, a message to that effect is displayed without showing the initial screen.

When the status is busy, wait until processing is done. When the progress data is retrieved, the [Progress of RAID Migration (Initial)] screen appears.

When migration is not performed, click the [OK] button to return to the [Menu] screen.

- 2 Check the status and progress.  
Clicking the [Refresh] button updates to the latest state.



#### Caution

- If the migration destination is TPP, and the used capacity of the relevant TPP is in alarm state (exceeding "Caution" or "Warning" threshold) after the migration has been completed, a message to recommend expanding the relevant TPP capacity appears.
- When the migration is complete and no RAID Migrations are in progress, a message to that effect appears. Click the [OK] button to return to the [Menu] screen.

- 3 Click the [Menu] button.  
 → Returns to the [Menu] screen.

**Caution**

In order to recover normal status (the status before failure), the configuration information of the ETERNUS DX400/DX8000 series may be needed. After RAID Migration has been completed, use the [Export Configuration] function to get the configuration information.

End of procedure

### 5.2.13.2 Stop Migration

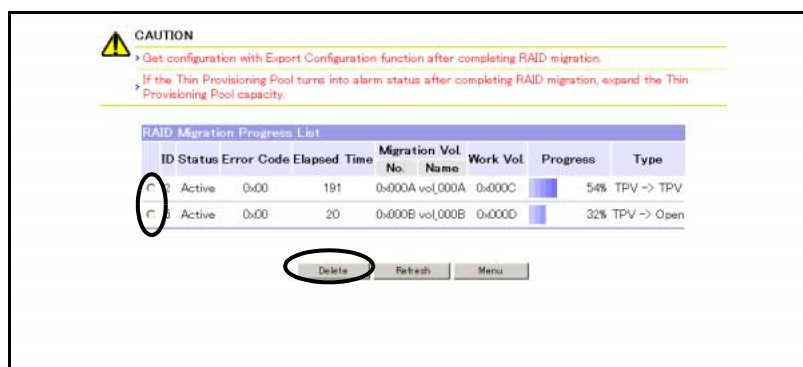
#### Procedure

- 1 Click [Progress of RAID Migration] under the RAID Management (or Thin Provisioning Management) in the [Configuration] menu.  
 → The [Progress of RAID Migration (Initial)] screen appears.

**Caution**

When the device is busy (retrieving progress data) or when migration is not performed, a message to that effect is displayed without showing the initial screen.  
 When the status is busy, wait until processing is done. When the progress data is retrieved, the [Progress of RAID Migration (Initial)] screen appears.  
 When migration is not performed, click the [OK] button to return to the [Menu] screen.

- 2 Select the migration session to delete, and click the [Delete] button.  
 Migration of any status can be deleted.

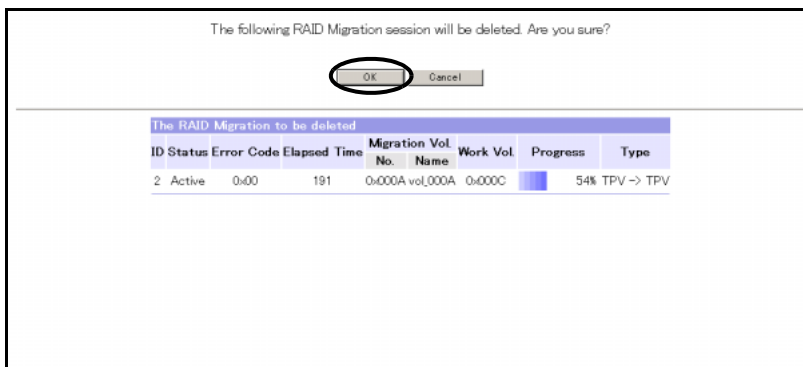


→ The [Progress of RAID Migration (Deletion Check)] screen appears.

**Caution** 

- When the [Delete] button is clicked without selecting a migration session to delete, an error screen appears.
- If the migration destination is TPP, and the used capacity of the relevant TPP is in alarm state (exceeding "Caution" or "Warning" threshold) after the migration has been completed, a message to recommend expanding the relevant TPP capacity appears.

**3** Click the [OK] button.

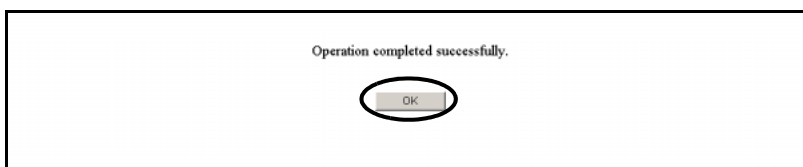


→ Displays the [Progress of RAID Migration (Deleting Migration Session)] screen. After the process is successfully completed, the [Progress of RAID Migration (Deletion Result)] screen appears.

**Caution** 

When the specified migration has already been completed, deletion cannot be executed. A message to that effect appears. Click the [OK] button to return to the [Menu] screen.

**4** Click the [OK] button.



→ Returns to the [Progress of RAID Migration (Initial)] screen.

**Caution** 

When the migration has been deleted or has been completed and no RAID Migrations are in progress, a message to that effect appears. Click the [OK] button to return to the [Menu] screen.

- 5** Click the [Menu] button.  
→ Returns to the [Menu] screen.

**Caution** 

In order to recover normal status (the status before failure), the configuration information of the ETERNUS DX400/DX8000 series may be needed. After RAID Migration has been completed, use the [Export Configuration] function to get the configuration information.

End of procedure

## 5.2.14 LUN Concatenation

This function concatenates multiple existing and new Logical Volumes in order to create a single Logical Volume with a larger capacity. A volume that is concatenated with this function is called an "Open Concatenated Volume".

By using [LUN Concatenation], it is possible to expand the server-usable volume capacity while the storage system is running (hot mode). If there is sufficient free area in the existing RAID groups, addition of new disks is not necessarily required to create a concatenated volume. [LUN Concatenation] is effective in solving capacity shortages.

- New volumes may be concatenated with existing volumes.  
If less than 16 volumes are concatenated, extra volumes may be added.
- Concatenated volumes are created from the free areas of RAID groups.
- This function enables concatenation over multiple RAID groups.  
It also enables the concatenation of multiple free areas in the same RAID group.
- When concatenating existing volumes, all RAID levels are supported.  
Concatenation is possible even if the new and existing volumes use different RAID levels.
- Volumes with a capacity of between 1,024(MB) and 8,388,607(MB) can be concatenated.
- Maximum volume capacity after concatenation is 32(TB).
- Up to 16 volumes can be concatenated.

### ■ Concatenated Volume Requirements

- Volume type must be [Open].
- Volume [Status] must be [Available] (\*1).
- Volume capacity must be at least 1,024(MB).
- For already concatenated volumes:
  - Number of volumes must be less than 16.
  - Volume capacity must be less than 32(TB).
- RAID Migration may not be running.
- Advanced Copy sessions may not be running.
- Remote Advanced Copy sessions may not be running.
- LDE process may not be running on any parent RAID groups.
- Volume Encryption may not be running.

\*1: The [Available] status includes volumes that are being formatted.

### ■ Concatenated Volume RAID Group Requirements

- A RAID Group must be the same disk type as the RAID Group where the volume to be concatenated is registered.
  - RAID group [Status] must be [Available].
  - RAID group must satisfy either of the following:
    - A RAID Group with Open Volume, Snap Data Volume, or Snap Data Pool Volume registered.
    - A RAID Group with no volume registered.
    - A RAID Group that is not registered in the Thin Provisioning Pool.
    - A RAID Group that is not registered as the REC Disk Buffer.
  - RAID group must have less than 128 volumes registered.
  - RAID group must have 1,024MB or more free area.
  - RAID group must not be blocked.
  - RAID group must not be running LDE.
  - A RAID Group must be registered in the same Resource Domain as the concatenation source volume (\*1).
- \*1: When Resource Domains are registered in the ETERNUS DX400/DX8000 series, concatenation is available only when the RAID Groups to which the concatenation source and destination volumes belong are registered in the same Resource Domain. If the concatenation source volume is a Shared Resource (volumes in which Resource Domain is "Share"), RAID Group to create the volume to be concatenated must be also the Shared Resource.

#### Caution



- Concatenated volumes with no existing volumes cannot be created. To concatenate only new volumes, first use the [Create Logical Volume] menu to create a new "existing" volume, then use the [LUN Concatenation] menu to concatenate the other new volumes on it. Mapping will be required after concatenating new volumes.
- Volumes may not be deleted (removed) from the concatenated volume with the [LUN Concatenation] function.
- After the [LUN Concatenation] function is used to expand the capacity of an existing volume, the server will need to re-acquire the increased volume capacity. Refer to the server OS and file system manuals for details.
- A concatenated volume including Thin Provisioning Volumes registered in the Thin Provisioning Pool cannot be created.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Assignable Resources for Logical Volume of the same number as volumes to be concatenated are required in the Resource Domain to which the concatenation source volume belongs to use the [LUN Concatenation] function. When the Assigned Resources for Logical Volumes reach the maximum number of Assignable Resources for Logical Volumes, volumes cannot be concatenated. The number of Logical Volumes that are assigned to the relevant Resource Domain and the number of Assignable Resources can be checked using the [Resource Domain List] function.

- When Resource Domains are registered in the ETERNUS DX400/ DX8000 series, the displayed volumes and the RAID Groups differ depending on the current user account.
  - When logged on using a Total Administrator account, all the volumes and RAID Groups that are assigned to Resource Domains are displayed.
  - When logged on using a Resource Domain Administrator account, only the volumes and RAID Groups that are assigned to the relevant Resource Domain, and only the volumes and RAID Groups that are assigned to the Shared Resource, are displayed.

---

 Note

- Apart from existing volume expansion using the [LUN Concatenation] function, there is another way of expanding the capacity of a volume. This is migrated volume expansion using the [RAID Migration] function. Refer to "[5.2.12 RAID Migration](#)" ([page 214](#)) details.
- Encryption status of the new concatenated volume follows that of the existing volume.
- New concatenated volumes are automatically formatted. Progress of formatting may be checked via the [Volume List] menu.
- When adding a new volume to the existing concatenated volume, where the different disk type volumes are concatenated, only the volume registered in the RAID Group with the same disk type as the volume to be concatenated (the first volume) can be used.

---

This section explains the LUN Concatenation procedures.

---

**Procedure**

- 1 Click [LUN Concatenation] under the RAID Management in the [Configuration] menu.  
→ The [LUN Concatenation (Select Volume to Expand)] screen appears.

---

**Caution**



In the following cases, the LUN Concatenation function cannot be used.

- When there is an abnormal component in the Controller Enclosure (CE) (CE Component Error).
  - When there are no Logical Volumes that can be expanded.
  - When the maximum number of Logical Volumes are already registered.
-

- 2 Select the radio button of the Logical Volume to be expanded and click the [Set] button.

Please select the base logical volume for the concatenation.

Logical Volume List									
Mainframe#	Open#	Name	Status	Volume Type	Encryption	Capacity (MB)	RAID Group No.	RAID Group Name	TPP No. Name
-	0x0000 (1/3)	vol_0000	Available	Open	-	131072/393216	0x000	raid_000	-
-	0x0000 (2/3)	-	Available	Open	-	131072/393216	0x000	raid_000	-
-	0x0000 (3/3)	-	Available	Open	-	131072/393216	0x000	raid_000	-
C	0x0001	vol_0001	Available	Open	-	1024	0x000	raid_000	-
C	0x0002	vol_0002	Available	Open	-	1024	0x000	raid_000	-
C	0x0003	vol_0003	Available	Open	-	1024	0x000	raid_000	-
C	0x0004	vol_0004	Available	Open	-	1024	0x000	raid_000	-
C	0x0005	vol_0005	Available	Open	-	1024	0x000	raid_000	-
C	0x0006	vol_0006	Available	Open	-	1024	0x000	raid_000	-
C	0x0007	vol_0007	Available	Open	-	1024	0x000	raid_000	-
C	0x0008 (1/2)	vol_0008	Available	Open	-	131072/262144	0x000	raid_000	-
C	0x0008 (2/2)	-	Available	Open	-	131072/262144	0x000	raid_000	-
C	0x0009	vol_0009	Available	Open	-	1024	0x000	raid_000	-

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 Jump to Page Next

Set Menu

→ The [LUN Concatenation (Concatenation Setting)] screen for the selected volume appears.

- 3 Click the [Add] button.

The following volumes will be concatenated.

Volumes to be Concatenated						
Logical Volume Open#	Name	Volume Type	Encryption	Allocated Capacity (MB)	RAID Group No.	RAID Level
0x0000 (1/3)	vol_0000	Open	-	131072	0x000	RAID5
0x0000 (2/3)	-	Open	-	131072	0x000	RAID5
0x0000 (3/3)	-	Open	-	131072	0x000	RAID5
						Total Capacity 393216MB

Add Return

→ The [LUN Concatenation (Select RAID Group)] screen appears.

- 4** Select the radio button of the RAID group in which new volume is to be created for concatenation, and click the [Set] button.

Please select the RAID Groups that is to be concatenated.

RAID Group No.	RAID Group Name	RAID Level	Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No.	TPP Name
0x000	raid_000	RAID5	Available	CM#0-CPU#0	149504	-	Open, SDPV	-	-
0x001	raid_001	RAID1	Available	CM#3-CPU#1	149504	OFF	Mainframe	-	-
0x002	raid_002	RAID1+0	Available	CM#1-CPU#0	1046528	-	SDV	-	-
0x003	raid_003	RAID1	Available	CM#2-CPU#1	971776	OFF	Mainframe, MVV	-	-
0x004	raid_004	RAID1+0	Available	CM#2-CPU#0	1121280	-	Open	-	-
0x005	raid_005	RAID1	Available	CM#1-CPU#1	1943552	OFF	-	-	-
0x006	raid_006	RAID5	Available	CM#3-CPU#0	598016	-	-	-	-
0x007	raid_007	RAID1+0	Available	CM#0-CPU#1	1196032	-	-	-	-
0x008	raid_008	RAID1	Available	CM#0-CPU#0	149504	OFF	-	-	-
0x009	raid_009	RAID1+0	Available	CM#3-CPU#1	149504	-	-	-	-

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→ The [LUN Concatenation (Input Volume)] screen for the selected RAID group appears. Refer to ["A.13.1 LUN Concatenation \(Input Volume\) Screen" \(page 734\)](#) for details about setting items.

- 5** Create the new volume to be concatenated.  
Select the radio button of the free area (Free) in which the new volume is to be created, enter the capacity of the concatenated volume, and click the [Set] button.

RAID Group# 0x008 : raid\_008, RAID1

Logical Volume Mainframe#	Open#	Name	Volume Type	Encryption	Allocated Capacity (MB)
0		Free	-	-	149504

Volume Type  
 Open Capacity :  MB

→ The [LUN Concatenation (Concatenation Setting)] screen appears with the created volume added (Not updated in the ETERNUS DX400/DX8000 series yet).

Repeat Steps 3 to 5 to add more volumes.

Move to Step 6 to remove added volumes.

Move to Step 8 when creating the volumes to be concatenated is completed.

**Caution**

- If the RAID group and/or the capacity of the added volume was not correct, remove the volume and add a new volume again. It is impossible to change the RAID group and capacity of the added volume.
- When clicking the [Set] button in the following conditions, an error screen appears.
  - When the [Capacity] is not entered or non-numeric characters are entered in the [Capacity].
  - When anything other than between 1,024 (MB) and 8,388,607(MB) is entered.
  - When a capacity exceeding the free area (Free) is entered.

**6** Remove the added volume.

Select the volume to remove with the radio button, and click the [Delete] button.

The following volumes will be concatenated.

Logical Volume Open#	Name	Volume Type	Encryption	Allocated Capacity (MB)	RAID Group No.	RAID Level
0x0000 (1/6)	vol_0000	Open	-	131072	0x000 raid_000	RAID5
0x0000 (2/6)	-	Open	-	131072	0x000 raid_000	RAID5
0x0000 (3/6)	-	Open	-	131072	0x000 raid_000	RAID5
<input checked="" type="radio"/> 0x0000 (4/6)	-	Open	-	2048	0x008 raid_008	RAID1
<input type="radio"/> 0x0000 (5/6)	-	Open	-	4096	0x008 raid_008	RAID1
<input type="radio"/> 0x0000 (6/6)	-	Open	-	8192	0x008 raid_008	RAID1
Total Capacity:407552MB						

Add **Delete** Set Return

→ The [LUN Concatenation (Deletion Check)] screen appears.

**Caution**

The existing volume to be concatenated or existing concatenated volume cannot be removed.

**7** Click the [OK] button.

The following volume will not be concatenated.

OK Cancel

Logical Volume Open#	Name	Volume Type	Encryption	Allocated Capacity (MB)	RAID Group No.	RAID Level
0x0000 (5/6)	-	Open	-	4096	0x008 raid_008	RAID1

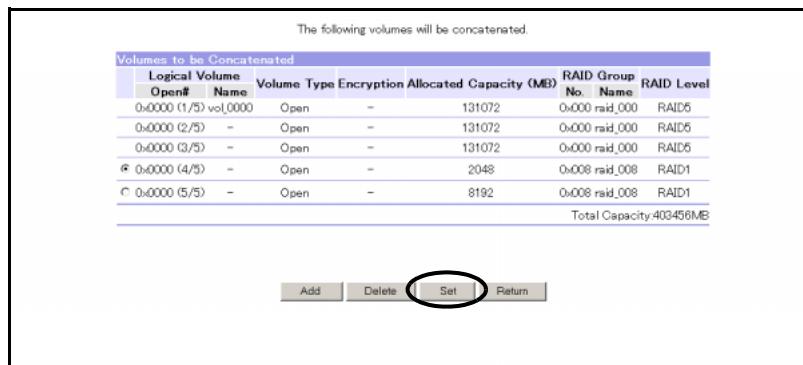
→ The [LUN Concatenation (Concatenation Setting)] screen appears with the selected volume removed (Not updated in the ETERNUS DX400/DX8000 series yet).

Repeat Steps 6 and 7 to remove more volumes.

Repeat Steps 3 to 5 to add new volumes.

Move to Step 8 when creating the volumes to be concatenated is completed.

- 8 Click the [Set] button to update the setting in the ETERNUS DX400/DX8000 series.



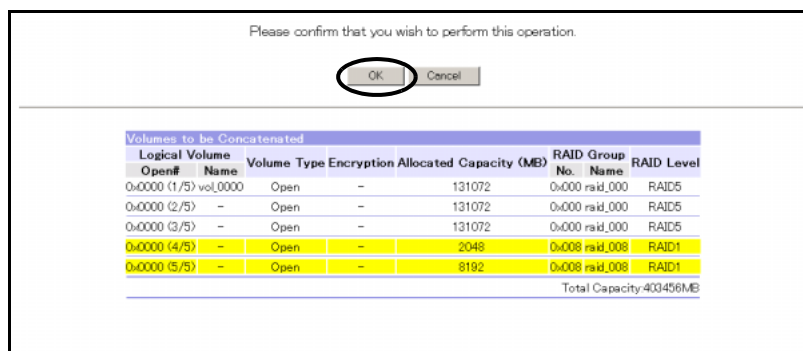
→ The [LUN Concatenation (Check Setting)] screen appears. The added volumes are displayed with a yellow background.

**Caution**



If the [Set] button is clicked when the total capacity of the existing volume and added volumes exceeds 32 (TB), an error screen appears.

- 9 Concatenate the volume by clicking the [OK] button.



→ The [LUN Concatenation (Updating Configuration Information)] screen appears. After the process is successfully completed, the [LUN Concatenation (Result)] screen appears.

**Caution**



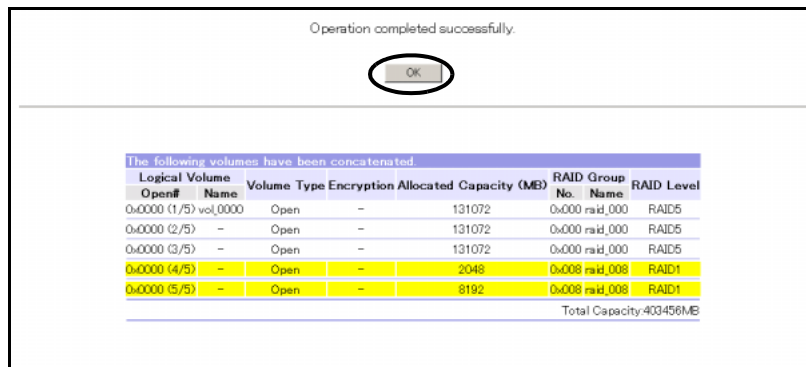
The [LUN Concatenation] function formats the new volumes to be added. When exceeding the maximum capacity of volumes that can be formatted concurrently, a message to that effect appears. Delete the work volume (TmpOpen volume) created during the LUN Concatenation process. Wait until the current format process is complete, and then perform the [LUN Concatenation] function again.



**Note**

The [LUN Concatenation (Result)] screen appears only when the creating new volumes and format starting process are successfully completed. Formatting progress can be checked either using the [Volume List] function or the [RAID Group List] function.

**10** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 5.2.15 Delete Logical Volume

This function deletes the created volume(s) without stopping ETERNUS DX400/DX8000 series operations.

### Caution

- If a volume is deleted, access to the data in the volume is lost.
- If any mapping information exists at volume deletion, the mapping information related to the deleted volume is also deleted automatically.
- Volumes in the following status cannot be deleted. If deletion of such volumes is attempted, an error is displayed. Also, an error is displayed if such volumes are a part of the selected range. In this case, no volumes in the selected range will be deleted.
  - Copy source and destination volumes under EC/OPC/REC operations.
  - Volumes that are set for extent setting by the bind-in-cache function. Volumes under EC/OPC/REC operations can be checked using the [Advanced Copy Status] menu.
- Volumes under RAID Migration cannot be deleted.
- Thin Provisioning Volumes that are being balanced cannot be deleted.
- Snap Data Pool Volumes (SDPV) cannot be deleted using the [Delete Logical Volume] function. Use the [Set Snap Data Pool] function to delete an SDPV.

- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the volumes that can be deleted differ depending on the current user account.
  - When logged on using a Total Administrator account, all the volumes that are assigned to Resource Domains can be deleted.
  - When logged on using a Resource Domain Administrator account, only the volumes that are assigned to the relevant Resource Domain, and only the volumes that are assigned to the Shared Resource, can be deleted.

This section explains procedures to delete Logical Volume.

## Procedure

- 1 Click [Delete Logical Volume] under the RAID Management (or Thin Provisioning Management) in the [Configuration] menu.  
→ The [Delete Logical Volume (Initial)] screen appears.  
Refer to ["A.5.1 Volume List \(Initial\) Screen" \(page 682\)](#) for screen details.

### Caution



If there is no volume that can be deleted, the [Delete Logical Volume] function cannot be performed, and the message to that effect appears. Click the [OK] button to return to the [Menu] screen.

- 2 Select the Logical Volume to be deleted, and click the [Set] button.  
The three methods below show how to specify the Logical Volume to be deleted.  
A consolidated/concatenated volume is deleted by the concatenated volume units.
  - Individual (Multiple selections can be made)  
Select the volume to delete from the volume list.
  - Range (Mainframe)  
Enter the first and last volume numbers to be deleted in the From/To fields.  
Volumes with checkboxes in the specified range can be deleted.  
Mainframe Volumes, MVV Volumes, and MVV Concatenated Volumes can be deleted.
  - Range (Open)  
Enter the first and last volume numbers to be deleted in the From/To fields.  
Volumes with checkboxes in the specified range can be deleted.  
Open Volumes, Snap Data volumes, Open Concatenated Volumes, Thin Provisioning Volumes, Temporary Volumes, MVV Volumes, and MVV Concatenated Volumes can be deleted.

Up to 128 Thin Provisioning Volumes can be deleted at the same time. And up to 128 non-Thin Provisioning Volumes can be deleted at the same time. When deleting 129 or more volumes, complete the volume deletion, and start the [Delete Logical Volume] function again.

**CAUTION**  
 > When a mapped volume is deleted, the mapping is also deleted

Please select the logical volumes that are to be deleted.

Logical Volume		Status	Volume Type	Encryption	Capacity (MB)	RAID Group		TPP	
Mainframe#	Open#					No.	Name	No.	Name
<input type="checkbox"/>	0x0000	vol_0000	Available	Open	-	131072	0x000	raid_000	-
<input type="checkbox"/>	0x0000	-	Available	F6427G	Yes	-	0x001	raid_001	-
<input type="checkbox"/>	-	0x0001	vol_0001	Available	SDV	-	131072	0x002	raid_002
<input type="checkbox"/>	0x0001	-	Available	F6427H	-	-	0x003	raid_003	-
<input type="checkbox"/>	0x0002	-	Available	F6427K	-	-	0x003	raid_003	-
<input type="checkbox"/>	0x0004	-	Available	F6427G	-	-	0x003	raid_003	-
<input type="checkbox"/>	-	0x0008	vol_0008	Available	TPV	-	1024	-	0x01
<input type="checkbox"/>	0x0003	0x000A (1/2)	vol_000A	Available	M/V (K)	-	-	0x003	raid_003
<input type="checkbox"/>	0x0005	0x000A (2/2)	-	Available	M/V (K)	-	-	0x003	raid_003
<input type="checkbox"/>	-	0x000B (1/3)	vol_000B	Available	Open	Yes	8192/24576	0x002	raid_002
<input type="checkbox"/>	-	0x000B (2/3)	-	Available	Open	-	8192/24576	0x002	raid_002
<input type="checkbox"/>	-	0x000B (3/3)	-	Available	Open	-	8192/24576	0x002	raid_002
<input type="checkbox"/>	-	0x0010	-	Available	SDPV	-	512	0x000	raid_000

**Individual Volumes / Range of Volumes Selection**

☐ Individual: Select logical volumes for deletion from the above list.

☐ Range (Mainframe): from Logical Volume #0x:  to Logical Volume #0x:

☐ Range (Open): from Logical Volume #0x:  to Logical Volume #0x:

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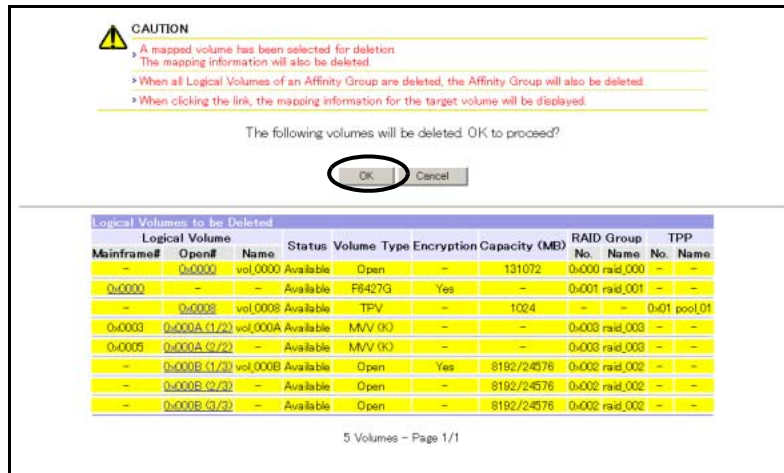
→ The [Delete Logical Volume (Check)] screen appears.

### Caution

- The same Logical Volume number exists in Open Volumes and Mainframe Volumes.  
When deleting volumes by the [Range], pay attention to the selection of the radio button.
- If the volume to be deleted is mapped, the mapping will be deleted as well.
- If all the volumes in the Affinity Group are deleted, the Affinity Group will be deleted as well.
- Volumes under RAID Migration (Migration Source Volume and Work Volume) cannot be deleted. Checkboxes are not displayed for these volumes.
- Thin Provisioning Volumes that are being balanced (balancing target Thin Provisioning Volumes and work volumes) cannot be deleted. Checkboxes are not displayed for these volumes.
- When clicking the [Set] button in the following conditions, an error screen appears:
  - No volumes are selected
  - Selecting 129 or more volumes for Individual selection
  - 129 or more deletion target volumes exist in the range for Range (Mainframe) selection
  - 129 or more deletion target Thin Provisioning Volumes exist in the range for Range (Open) selection
  - 129 or more deletion target volumes other than Thin Provisioning Volumes exist in the range for Range (Open) selection

- One field or both fields of the Range (From and/or To) has/have not been entered
- Characters other than numeric or alphabetic characters [a] – [f] or [A] – [F] are specified in the range field
- There are no deletion target volumes in the range (From and To)

### 3 Click the [OK] button.



The volume that is being mapped is displayed with a yellow background.

→ The [Delete Logical Volume (Updating Configuration Information)] screen appears.  
When the process is successfully completed, the [Delete Logical Volume (Complete)] screen appears.

#### Caution

- An error screen appears when an error occurs during volume deletion and/or mapping deletion.  
Click the [OK] button to return to the [Menu] screen.
- When Thin Provisioning Volumes (TPV) are deleted, the physical allocating area of the relevant TPV will be formatted. When exceeding the maximum capacity of volumes that can be formatted concurrently, a message to that effect appears. TPV that fails to be formatted cannot be deleted. Wait until the current format process is complete, and then delete the TPV that failed to be formatted. "Readying" is displayed for "Status" field of the TPV for which formatting failed in the Logical Volume List.



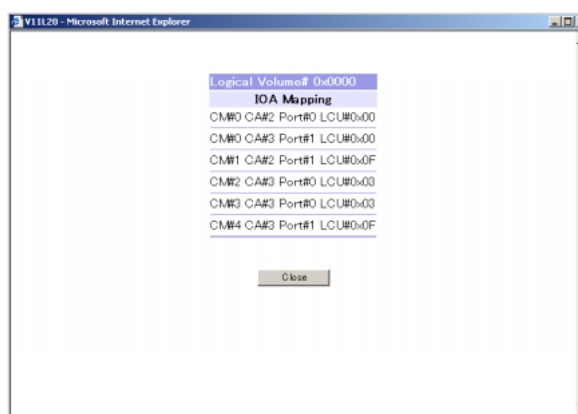
Note

If a volume is being mapped, a link is displayed in the [Logical Volume#]. Click the [Logical Volume#] link to check the mapping information for the target volume.

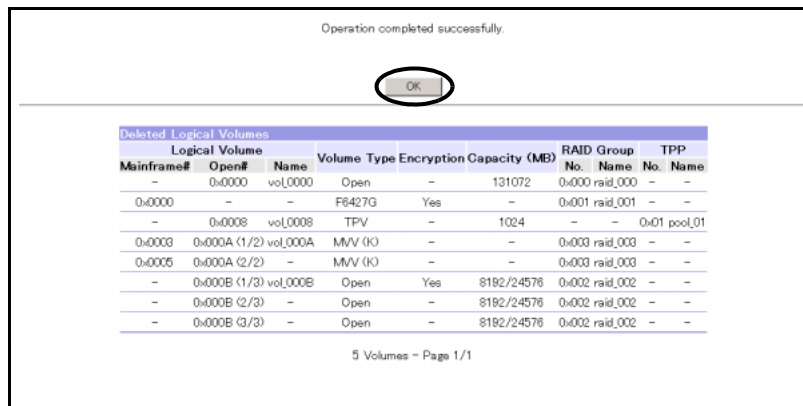
- For Open Volumes



- For Mainframe Volumes



4 Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 5.2.16 Create Hot Spare

This function creates hot spare disks without stopping ETERNUS DX400/DX8000 series operations. A hot spare disk acts as a backup disk in case of disk drive failure.

The created hot spare disks are shared by each RAID Group. If a disk failure occurs, rebuild starts automatically. After a failed disk drive is replaced, the data is copied back to the new disk drive. The hot spare disk which was used as a backup of the failed disk drive returns to a spare disk.

### Caution



- A system disk can NOT be created as a hot spare disk.
- The capacity of a hot spare disk must be equal to or larger than the failed disk drive in order to take over. Make sure to create a hot spare disk of the same capacity as or larger than the data disk.
- Create a hot spare disk which is the same type (Fibre Channel disk drive, Nearline SATA disk drive, or SSD) as the data disks and has the largest capacity of the data disks.



### Note

The disk drive in the last slot (Disk#OE) of each Drive Enclosure (DE) should be assigned as a hot spare disk. When multiple hot spare disks are assigned, it is recommended that they be in reverse order from the last slot (i.e. Disk#OE, then Disk#OD, Disk#OC, ...).

This section explains procedures to create Hot Spare.

## Procedure

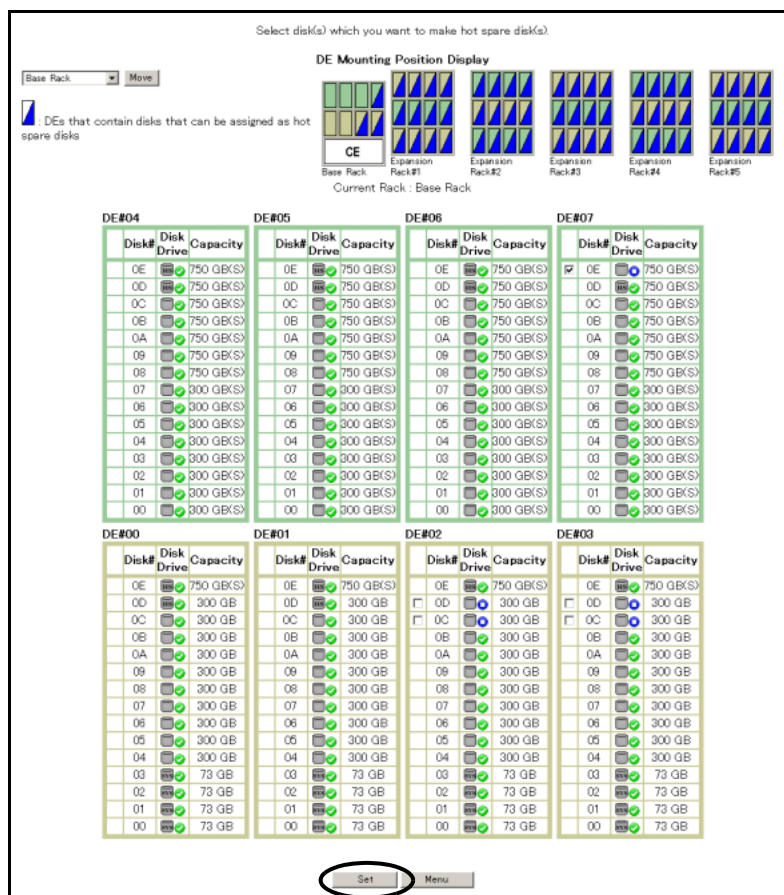
- 1 Click [Create Hot Spare] under the RAID Management (or Thin Provisioning Management) in the [Configuration] menu.  
→ The [Create Hot Spare (Initial)] screen appears.

### Caution

If there is no disk available for creating a hot spare, a message to that effect appears. Click the [OK] button to return to the [Menu] screen.

In order to create a hot spare disk, add a disk drive before executing the [Create Hot Spare] function again.

- 2 Select the disk(s) to be created as hot spare, and click the [Set] button.  
Click the [Move] button to display the Expansion Rack screen. Select the Expansion Rack disk(s) using the same procedure as for the Base Rack.

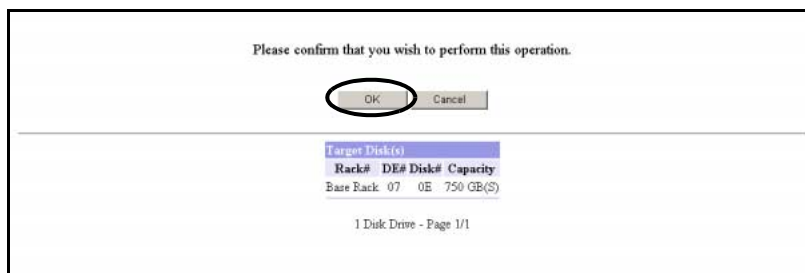


→ The [Create Hot Spare (Check Setting)] screen appears.

### Caution

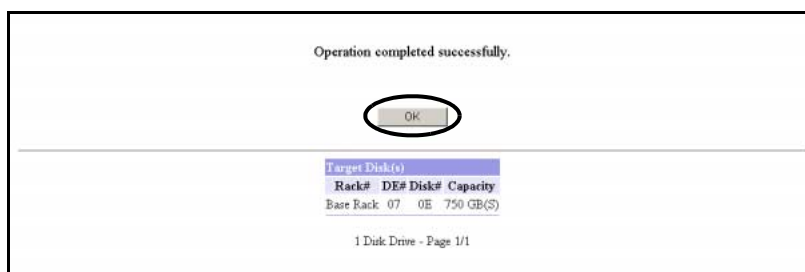
When the [Set] button is clicked without selecting a disk to be created as hot spare, an error screen appears.

**3** Click the [OK] button.



→ When the [Create Hot Spare (Updating Configuration Information)] screen appears and the operation completes successfully, the [Create Hot Spare (Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 5.2.17 Delete Hot Spare

This function deletes registered hot spare disk(s) without stopping ETERNUS DX400/DX8000 series operations.



**Caution** Hot spare disk(s) currently in use cannot be deleted.



**Note**

Once the deletion is complete, the disk drive can be used as a data disk. In that case, the disk drive should be configured in a RAID Group.

This section explains procedures to delete Hot Spare.

## Procedure

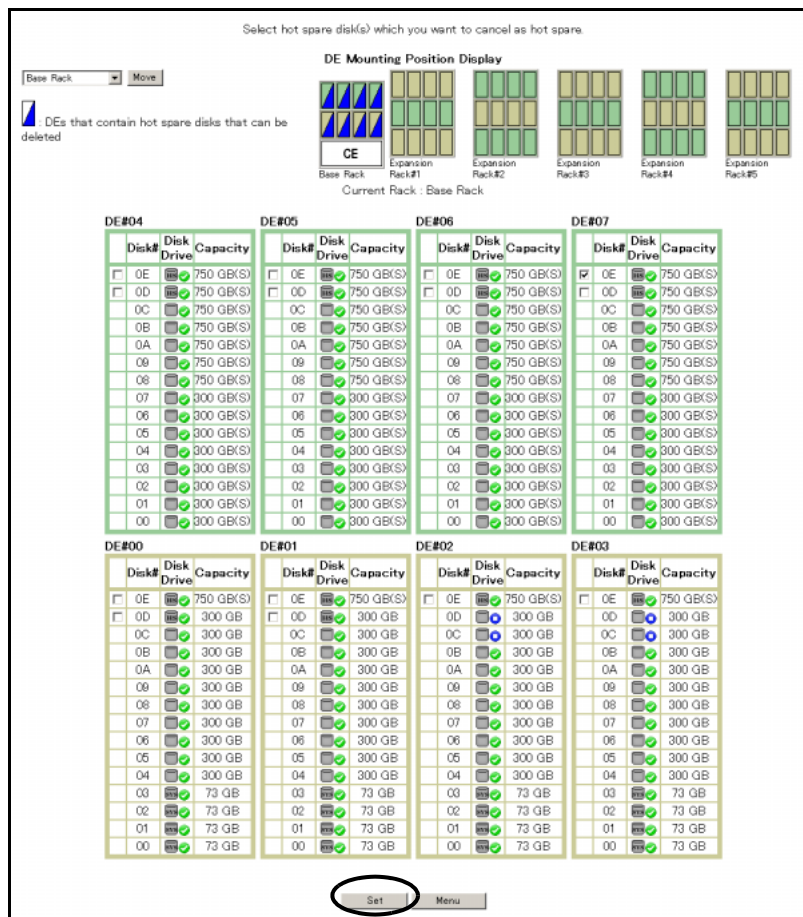
- 1 Click [Delete Hot Spare] under the RAID Management (or Thin Provisioning Management) in the [Configuration] menu.  
→ The [Delete Hot Spare (Initial)] screen appears.

### Caution



If there is no hot spare disk available for deletion, a message to that effect appears. Click the [OK] button to return to the [Menu] screen.

- 2 Select the hot spare disk(s) to be deleted, and click the [Set] button.  
Click the [Move] button to display the Expansion Rack screen. Select the hot spare disk(s) in the Expansion Rack using the same procedure as for the Base Rack.



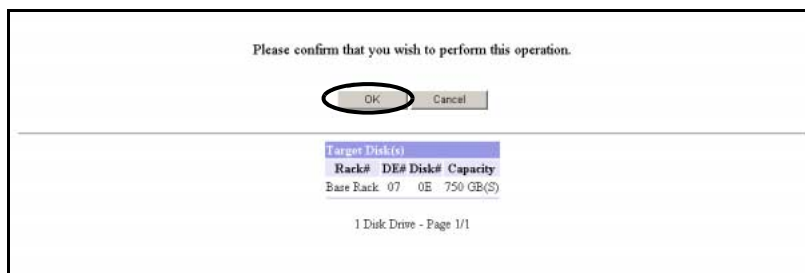
→ The [Delete Hot Spare (Check Setting)] screen appears.



### Note

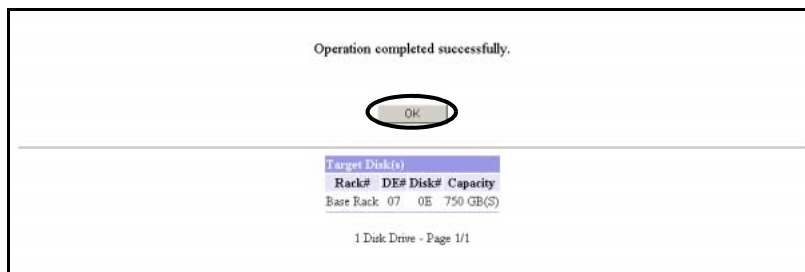
When the [Set] button is clicked without selecting a hot spare disk to be deleted, an error screen appears.

**3** Click the [OK] button.



→ When the [Delete Hot Spare (Updating Configuration Information)] screen appears and the operation completes successfully, the [Delete Hot Spare (Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 5.3 Thin Provisioning Management

Thin Provisioning Management provides the volume settings under the Thin Provisioning environment.

The following can be set up on this screen.

- Create/Extend Thin Provisioning Pool
- Set Thin Provisioning Pool Parameters
- Format Thin Provisioning Pool
- Rename RAID Group
- Change Controlling CM of RAID Group
- Delete Thin Provisioning Pool
- Create Logical Volume
- Rename Logical Volume
- Set Thin Provisioning Volume Parameters
- Format Logical Volume
- Thin Provisioning Volume Expansion
- Balance Thin Provisioning Volume
- Progress of Balance Thin Provisioning Volume
- RAID Migration
- Progress of RAID Migration
- Delete Logical Volume
- Create Hot Spare
- Delete Hot Spare
- Register Thin Provisioning License

### Caution



When using the Thin Provisioning, register the Thin Provisioning license using the [Register Thin Provisioning License] function. When there is no Thin Provisioning License registered, the following functions cannot be used.

- Status
  - Thin Provisioning Pool List
- Thin Provisioning Management
  - Create/Extend Thin Provisioning Pool
  - Set Thin Provisioning Pool Parameters
  - Format Thin Provisioning Pool
  - Delete Thin Provisioning Pool
  - Set Thin Provisioning Volume Parameters
  - Thin Provisioning Volume Expansion
  - Balance Thin Provisioning Volume
  - Progress of Balance Thin Provisioning Volume

## 5.3.1 Create/Extend Thin Provisioning Pool

This menu provides the following functions:

- Create/Extend Thin Provisioning Pool
- Thin Provisioning Pool Expansion
- Change Thin Provisioning Pool Name

- The maximum number and capacity of Thin Provisioning Pool (TPP)

Model	Maximum Number of TPP	Maximum TPP Capacity (TB)
ETERNUS DX410	52	312
ETERNUS DX440	105	630
ETERNUS DX8100	14	630
ETERNUS DX8400	251	1024
ETERNUS DX8700	256	1024

### Caution



- When there is no Thin Provisioning License registered, the [Create/Extend Thin Provisioning Pool] function cannot be executed.
- After creating the Thin Provisioning Pool, registered RAID Group information (RAID levels and disk drive types) cannot be changed. To change the RAID Group information, delete the target Thin Provisioning Pool, and create it again.
- After creating the Thin Provisioning Pool, the Pool capacity can be expanded in units of RAID Groups. New RAID Groups are added in the Pool according to the existing RAID Group information (RAID levels and disk drive types). When changing RAID Group information, create a new Thin Provisioning Pool.
- When encryption mode is disabled, encrypted Thin Provisioning Pools cannot be created.
- Creating or expanding Thin Provisioning Pools is not available in the following conditions:
  - When the maximum number of Thin Provisioning Pools are already registered
  - When the maximum capacity of Thin Provisioning Pools are already registered
  - When resources for creating Thin Provisioning Pools (such as number of RAID Groups) are insufficient
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Resource Domains that can be assigned to the Thin Provisioning Pools differ depending on the current user account.
  - When logged on using a Total Administrator account, Thin Provisioning Pools can be assigned to all the Resource Domains.
  - When logged on using a Resource Domain Administrator account, Thin Provisioning Pools can be assigned only to the relevant Resource Domain.



Note

- When the Thin Provisioning Pool creation process is completed, the Thin Provisioning Pool will be formatted automatically. Refer to the [Thin Provisioning Pool List] function for format progress.
- After creating Thin Provisioning Pool in the ETERNUS DX400/DX8000 series, use the [Set Thin Provisioning Pool Parameters] menu to set the threshold to monitor the Pool usage. When a Thin Provisioning Pool is created, default thresholds (Warning threshold: 90(%) and Caution threshold: 75(%)) is specified.
- When changing Controlling CM-CPU for RAID Groups registered in the Thin Provisioning Pool, use the [Change Controlling CM of RAID Group] function.
- When changing RAID Group names registered in the Thin Provisioning Pool, use the [Rename RAID Group] function.

This section explains [Create/Extend Thin Provisioning Pool] procedures.  
The following settings are available.

- [Create Thin Provisioning Pool](#)
- [Thin Provisioning Pool Expansion](#)
- [Change Thin Provisioning Pool Name](#)

Procedures for each operation are described below.

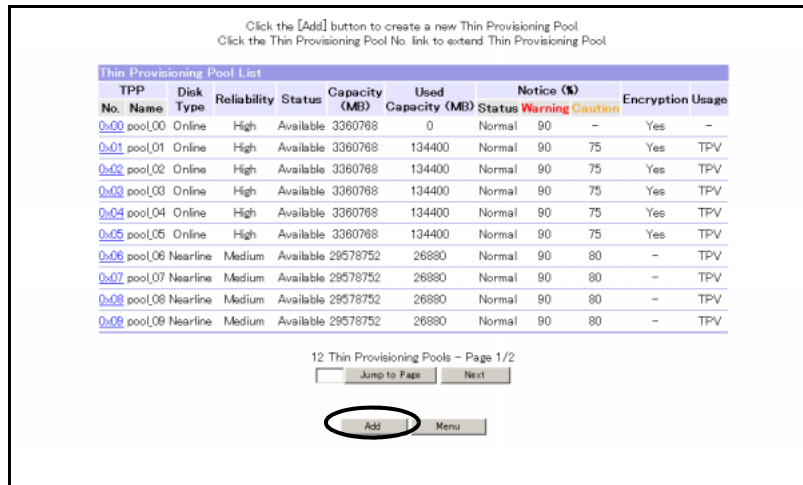
### 5.3.1.1 Create Thin Provisioning Pool

This section explains how to create new Thin Provisioning Pools.

#### Procedure

- 1 Click [Create/Extend Thin Provisioning Pool] under the Thin Provisioning Management in the [Configuration] menu.  
→ The [Create/Extend Thin Provisioning Pool (Select Pool)] screen appears.

## 2 Click the [Add] button.



→ The [Create/Extend Thin Provisioning Pool (Pool Setting (Create Pool))] screen appears.

### Caution



When new Thin Provisioning Pools cannot be created, a message to that effect is displayed. Click the [Menu] button to return to the [Menu] screen.

## 3 Select the Thin Provisioning Pool (TPP) information, input the number of RAID Groups to be registered, and click the [Set] button.

Specify the following TPP information.

- TPP Name
- Resource Domain (\*1)
- Disk Type
- Reliability
- Encryption
- Number of RAID Groups
- Method of selecting disk
- Disk Size (when selecting "Auto" for Method of selecting disk)

\*1: Resource Domain is only displayed when Resource Domains are registered in the ETERNUS DX400/DX8000 series, and when logged on using a Total Administrator account.

There are two methods to select disks.

- Auto  
Select disk drives to create RAID Groups. Disk layout is automatically decided. Controlling CM-CPU for the RAID Group is allocated with [Auto] setting.
- Manual  
User selects the disk capacity, layout, and Controlling CM-CPU to configure the RAID Groups.

■ When [Auto] is selected as the Method of selecting disks

→ The [Create/Extend Thin Provisioning Pool (RAID Group Settings in Pool)] screen appears. Move on to [Step 6](#).

■ When [Manual] is selected as the Method of selecting disks

→ The [Create/Extend Thin Provisioning Pool (RAID Group Settings in Pool)] screen appears. Move on to [Step 4](#).

● RAID Group Settings that Configures TPP

ETERNUS DX400/DX8000 series determines the RAID level and number of disk drives registered in TPP according to the selected [Disk Type] and [Reliability] as shown below.

Disk Type	Reliability		
	High	Medium	None
Online (Fibre Channel disk drives)	RAID1+0(2+2) Number of disk drives: 4	RAID5(3+1) Number of disk drives: 4	RAID0 Number of disk drives: 4
Nearline (Nearline SATA disk drives)	RAID6(6+2) Number of disk drives: 8	RAID5(7+1) Number of disk drives: 8	RAID0 Number of disk drives: 4

**Caution** 

- When Reliability is [None], RAID0 is selected as the RAID level. RAID0 has no data redundancy. Select [High] or [Medium] for Reliability.
- When clicking the [Set] button in the following conditions, an error screen appears.
  - When entering characters other than ASCII code (0x20 – 0x7E) as TPP Name
  - When entering existing Pool name as the TPP name
  - When the Number of RAID Groups value is blank
  - When entering characters other than numerals as the Number of RAID Groups value
  - When entering "0" as the Number of RAID Groups value
  - When the total of Number of RAID Groups value and number of existing RAID Group exceeds the maximum number of RAID Groups for each model
  - When creating RAID Groups in TPP, ETERNUS DX400/ DX8000 series secures resources that represents the volume number. When the required resource exceeds the maximum number for each model
  - When [Auto] is selected as the Method of selecting disk, and the Disk Size value is not specified
  - When [Auto] is selected as the Method of selecting disk, and the RAID Groups cannot be configured with the registered disk drives
  - When [Manual] is selected as the Method of selecting disk, and the unused disk drives specified as Disk Type is not installed
  - When [Manual] is selected as the Method of selecting disk, and the RAID Groups cannot be configured with the disk drives specified as Disk Type

- 4** Click the [RAID Group No.] link of the RAID Group to be registered in the Thin Provisioning Pool.

Please click on the link with the RAID Group No. to specify the target disks for the RAID Group.

Thin Provisioning Pool Settings						
TPP No.	Disk Name	Type	Reliability	Capacity (MB)	Used Capacity (MB)	Encryption
0x0C	pool0C	Online	High	0	0	Yes

RAID Group Settings				
RAID Group No.	RAID Name	RAID Level	Controlling CM	Capacity (MB)
<a href="#">0x14C</a>		RAID1+0	Undefined	0
<a href="#">0x14D</a>		RAID1+0	Undefined	0

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→ The [Create/Extend Thin Provisioning Pool (Select Disk Drive)] screen appears.



Note

- When the disk drives configuring the RAID Group are determined, the [Capacity (MB)] value of Thin Provisioning Pool Settings is updated.
- When the disk drives configuring the RAID Group are determined, the relevant RAID Group in the RAID Group Settings is displayed with a yellow background.

## 5 Input the RAID Group settings, select all the disk drives that configure the RAID Group, and click the [Set] button.

Specify the following RAID Group settings:

- RAID Group Name
- Controlling CM
- Disk drive

RAID Group#0x14C, RAID1+0  
 Number of configuration disks 4  
 RAID Group Name  
 Controlling CM Auto

DE Mapping Display

Base Rack Expansion Rack#1 Expansion Rack#2 Expansion Rack#3 Expansion Rack#4 Expansion Rack#5

Current Rack: Base Rack

DE#04	DE#05	DE#06	DE#07		
Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity
0E	750 GB(S)		0E	750 GB(S)	
0D	300 GB		0D	300 GB	
0C	750 GB(S)		0C	750 GB(S)	
0B	750 GB(S)		0B	750 GB(S)	
0A	300 GB		0A	300 GB	
09	300 GB		09	300 GB	
08	300 GB		08	300 GB	
07	300 GB		07	300 GB	
06	300 GB		06	300 GB	
05	300 GB		05	300 GB	
04	300 GB		04	300 GB	
03	300 GB		03	300 GB	
02	300 GB		02	300 GB	
01	300 GB		01	300 GB	
00	300 GB		00	300 GB	

DE#00	DE#01	DE#02	DE#03		
Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity
0E	750 GB(S)		0E	750 GB(S)	
0D	300 GB		0D	300 GB	
0C	750 GB(S)		0C	750 GB(S)	
0B	750 GB(S)		0B	750 GB(S)	
0A	300 GB		0A	300 GB	
09	300 GB		09	300 GB	
08	300 GB		08	300 GB	
07	300 GB		07	300 GB	
06	300 GB		06	300 GB	
05	300 GB		05	300 GB	
04	300 GB		04	300 GB	
03	73 GB		03	73 GB	
02	73 GB		02	73 GB	
01	73 GB		01	73 GB	
00	73 GB		00	73 GB	

Set Return

→ The [Create/Extend Thin Provisioning Pool (RAID Group Settings in Pool)] screen appears.

When registering multiple RAID Groups in the Thin Provisioning Pool, repeat [Step 4](#) and [Step 5](#) as required.

After registering RAID Groups to the Thin Provisioning Pool completes, move on to [Step 6](#).

Restrictions for disk layout varies depending on the RAID level of the RAID Groups registered in the Thin Provisioning Pool. Confirm the following restrictions to select disk drives.

● Restrictions for Disk Layout

RAID level	Restrictions for disk layout
RAID0	No restrictions
RAID1+0	Mirroring should NOT be by disk drives in the same FC-Loop
RAID5(3+1), RAID5(7+1) (for ETERNUS DX410/DX440 or ETERNUS DX8100)	No restrictions
RAID5(3+1) (for ETERNUS DX8400/DX8700)	<ul style="list-style-type: none"> <li>Member Disks should NOT be in the same FC-Loop</li> <li>RAID Group should be configured in the pair BRT</li> </ul>
RAID5(7+1) (for ETERNUS DX8400/DX8700)	Member Disks should NOT be in the same FC-Loop
RAID6(6+2) (for ETERNUS DX410/DX440 or ETERNUS DX8100)	No restrictions
RAID6(6+2) (for ETERNUS DX8400/DX8700)	3 or more Member Disks should NOT be in the same FC-Loop

**Caution** 

- Select disk drives with the same capacity. If disk drives of different capacities exist in a RAID Group, the smallest becomes the standard, and all other disks are regarded as the same capacity as the smallest disk drive. In this case, the remaining disk space will NOT be used.
  - When clicking the [Set] button in the following conditions, an error screen appears.
    - When entering characters other than ASCII code (0x20 – 0x7E) as RAID Group Name.
    - When entering the existing RAID Group name.
    - When the number of selected disk drives and the [Number of configuration disks] in the RAID Group settings do not match.
    - When the FC-Loop where the selected disk belongs does not meet conditions for each RAID level.
- For the disk layout restrictions for each RAID level, refer to ["Restrictions for Disk Layout" \(page 253\)](#).

## 6 Click the [Set] button.

Please click on the link with the RAID Group No. to specify the target disks for the RAID Group

Thin Provisioning Pool Settings						
TPP No.	Disk Name	Type	Reliability	Capacity (MB)	Used Capacity (MB)	Encryption
0x0C pool0C	Online		High	1120256	0	Yes

RAID Group Settings				
RAID Group No.	Name	RAID Level	Controlling CM	Capacity (MB)
<a href="#">0x140</a>	raid_140	RAID1+0	CM#0-CPU#0	560128
<a href="#">0x140</a>	raid_140	RAID1+0	CM#1-CPU#1	560128

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→ The [Create/Extend Thin Provisioning Pool (Check)] screen appears.

### Caution

When clicking the [Set] button in the following conditions, an error screen appears.

- When there are RAID Groups without configuration disks. (RAID Groups without yellow background exists)
- When the total value of Thin Provisioning Pool (TPP) capacity to be created and existing TPP capacity exceeds the maximum TPP capacity for each model.

### Note

When the Method for selecting disks is [Auto], the RAID Group name is not set.

When changing the RAID Group name, click the [RAID Group No.] link for the target RAID Group. The [RAID Group Name] can be specified in the displayed [Create Thin Provisioning (Select Disk Drive)] screen. Note that RAID Group name can be also changed using the [Rename RAID Group] function.

## 7 Click the [OK] button.

Newly added RAID Groups are displayed with a yellow background.

Please confirm that you wish to perform this operation.

Thin Provisioning Pool Settings						
TPP No.	Disk Name	Type	Reliability	Capacity (MB)	Used Capacity (MB)	Encryption
0x0C pool0C	Online		High	1120256	0	Yes

RAID Group Settings				
RAID Group No.	Name	RAID Level	Controlling CM	Capacity (MB)
<a href="#">0x140</a>	raid_140	RAID1+0	CM#0-CPU#0	560128
<a href="#">0x140</a>	raid_140	RAID1+0	CM#1-CPU#1	560128

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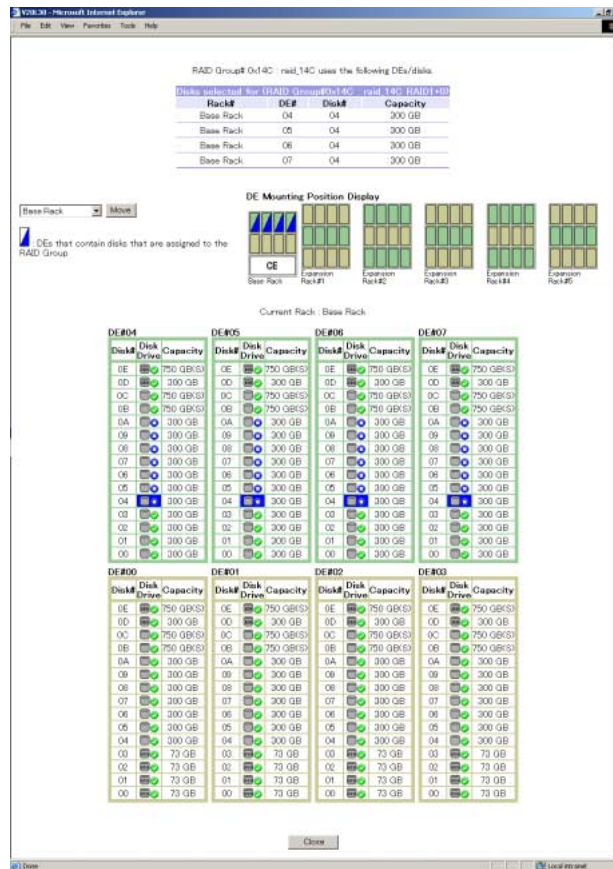
→ When the [Create/Extend Thin Provisioning Pool (Updating Configuration Information)] screen appears and the operation completes successfully, the [Create/Extend Thin Provisioning Pool (Result)] screen appears.

**Caution**

When creating a new Thin Provisioning Pool (TPP), RAID Groups are registered in the TPP. A RAID Group obtains the Resource according to the volume number, and a single RAID Group is used as a single volume. After creating a TPP, all the RAID Groups that configure the TPP are formatted. When exceeding the maximum capacity of volumes that can be formatted at the same time, a message to that effect appears. Wait until the current format process is complete, and then format the unformatted area of the TPP.

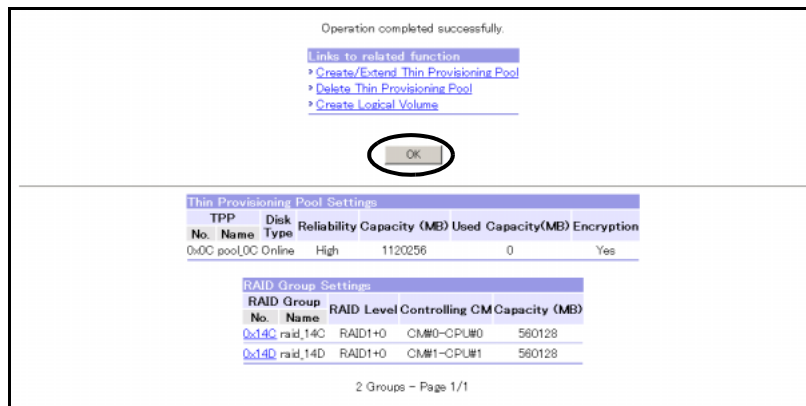
**Note**

- Clicking the [RAID Group No.] link displays the disk drives configure the RAID Group.



- When the RAID Group name is changed, the [Create/Extend Thin Provisioning Pool (Setting RAID Group Name)] screen appears after the [Create/Extend Thin Provisioning Pool (Updating Configuration Information)] screen.

**8** Click the [OK] button.



→ Returns to the [Menu] screen.

**Caution**

The [Delete Thin Provisioning Pool] link is displayed only when logged on with a user account whose role supports the [Delete Thin Provisioning Pool] function.

**Note**

- Click the [Create/Extend Thin Provisioning Pool] link to continue the Thin Provisioning Pool creation.
- Click the [Delete Thin Provisioning Pool] link to delete the Thin Provisioning Pool.
- Click the [Create Logical Volume] link to create Thin Provisioning Volumes.

End of procedure

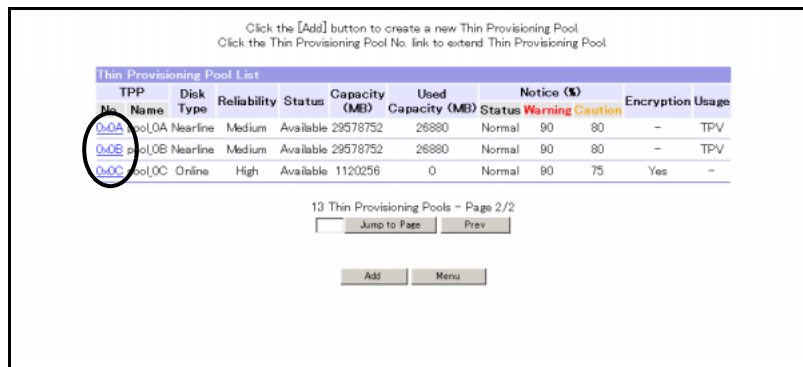
### 5.3.1.2 Thin Provisioning Pool Expansion

This section describes how to expand the Thin Provisioning Pool capacity.

#### Procedure

- 1 Click [Create/Extend Thin Provisioning Pool] under the Thin Provisioning Management in the [Configuration] menu.  
 → The [Create/Extend Thin Provisioning Pool (Select Pool)] screen appears.

**2** Click the [TPP No.] link for the Thin Provisioning Pool to be expanded.



→ The [Create/Extend Thin Provisioning Pool (Pool Setting (Capacity Expansion))] screen appears.

**Caution**

If the capacity of the Thin Provisioning Pool cannot be expanded, a message to that effect is displayed. Click the [Menu] button to return to the [Menu] screen.

**3** Input the number of RAID Groups to be added in the Thin Provisioning Pool (TPP), select the Method of selecting disk, and click the [Set] button.

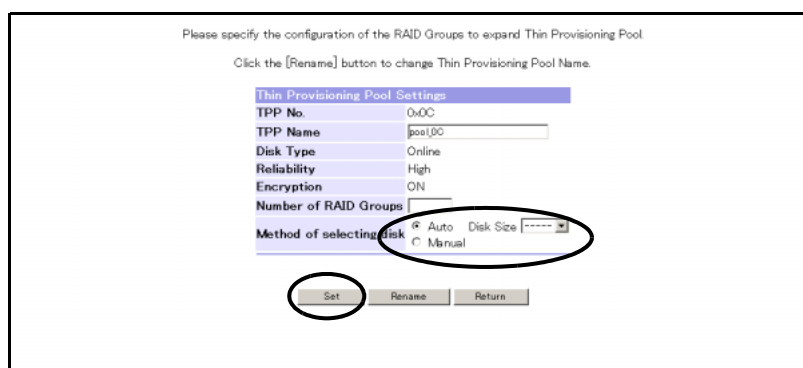
Add the RAID Groups to the selected TPP. New RAID Group are added in the Pool according to the existing RAID level, disk drive type (Fibre Channel or Nearline SATA disk drive), and encryption status. Refer to ["RAID Group Settings that Configures TPP" \(page 250\)](#) for details.

Specify the following TPP information.

- Number of RAID Groups
- Method of selecting disk
- Disk Size (when selecting "Auto" for Method of selecting disk)

There are two methods to select disks.

- Auto  
Select disk drives to create RAID Groups. Disk layout is automatically decided. Controlling CM-CPU for the RAID Group is allocated with [Auto] setting.
- Manual  
User selects the disk capacity, layout, and Controlling CM-CPU to configure the RAID Groups.



- When [Auto] is selected as the Method of selecting disks
  - The [Create/Extend Thin Provisioning Pool (RAID Group Settings in Pool)] screen appears. Move on to [Step 6](#).
- When [Manual] is selected as the Method of selecting disks
  - The [Create/Extend Thin Provisioning Pool (RAID Group Settings in Pool)] screen appears. Move on to [Step 4](#).

---

**Caution**



- When expanding TPP, RAID Group Settings (RAID levels and disk drive types) for the additional RAID Groups cannot be changed. When changing the RAID Group Settings, delete the target TPP, and create it again.
  - TPP expansion and renaming TPP operations cannot be performed at the same time. Expand the TPP first, and then change the TPP name.
  - When clicking the [Set] button in the following conditions, an error screen appears.
    - When the Number of RAID Groups value is blank
    - When entering characters other than numerals as the Number of RAID Groups value
    - When entering "0" as the Number of RAID Groups value
    - When the total of Number of RAID Groups value and number of existing RAID Group exceeds the maximum number of RAID Groups for each model
    - When creating RAID Groups in TPP, ETERNUS DX400/DX8000 series secures resources that represents the volume number. When the required resource exceeds the maximum number for each model
    - When [Auto] is selected as the Method of selecting disk, and the Disk Size value is not specified
    - When [Auto] is selected as the Method of selecting disk, and the RAID Groups cannot be configured with the registered disk drives
    - When [Manual] is selected as the Method of selecting disk, and the unused disk drives specified as Disk Type is not installed
    - When [Manual] is selected as the Method of selecting disk, and the RAID Groups cannot be configured with the disk drives specified as Disk Type
-

- 4 Click the [RAID Group No.] link of the RAID Group to be added in the Thin Provisioning Pool.

Please click on the link with the RAID Group No. to specify the target disks for the RAID Group.

Thin Provisioning Pool Settings						
TPP No.	Disk Name	Type	Reliability	Capacity (MB)	Used Capacity(MB)	Encryption
0x0C	pool0C	Online	High	1120256	0	Yes

RAID Group Settings				
RAID Group No.	Name	RAID Level	Controlling CM	Capacity (MB)
0x14C	raid_14C	RAID1+0	CM#0-CPU#0	560128
0x14D	raid_14D	RAID1+0	CM#1-CPU#1	560128
<a href="#">0x14E</a>		RAID1+0	Undefined	0

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Set Return

→ The [Create/Extend Thin Provisioning Pool (Select Disk Drive)] screen appears.

**Caution**

RAID Group Settings (RAID level, disk drive types, disk capacities, Controlling CM-CPU, and RAID Group name) for RAID Groups registered in the Thin Provisioning Pool cannot be changed. The [RAID Group No.] link is not displayed for the existing RAID Group.

**Note**

- When the disk drives configuring the RAID Group are determined, the [Capacity (MB)] value of Thin Provisioning Pool Settings is updated.
- When the disk drives configuring the RAID Group are determined, the relevant RAID Group in the Thin Provisioning Pool Settings is displayed with a yellow background.

## 5 Input the additional RAID Group settings, select all the disk drives that configure the RAID Group, and click the [Set] button.

Specify the following RAID Group settings:

- RAID Group Name
- Controlling CM
- Disk drive

RAID Group Settings

Number of configuration disks: 4

RAID Group Name: [ ]

Controlling CM: Auto

Base Rack [ ] Move

DEs that contain disks that can be assigned to a RAID Group

DE Mounting Position Display

Base Rack Expansion Rack#1 Expansion Rack#2 Expansion Rack#3 Expansion Rack#4 Expansion Rack#5

Current Rack: Base Rack

DE#04	DE#05	DE#06	DE#07								
Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity
0E	750 GB(S)		0E	750 GB(S)		0E	750 GB(S)		0E	750 GB(S)	
0D	300 GB		0D	300 GB		0D	300 GB		0D	300 GB	
0C	750 GB(S)		0C	750 GB(S)		0C	750 GB(S)		0C	750 GB(S)	
0B	750 GB(S)		0B	750 GB(S)		0B	750 GB(S)		0B	750 GB(S)	
0A	300 GB		0A	300 GB		0A	300 GB		0A	300 GB	
09	300 GB		09	300 GB		09	300 GB		09	300 GB	
08	300 GB		08	300 GB		08	300 GB		08	300 GB	
07	300 GB		07	300 GB		07	300 GB		07	300 GB	
06	300 GB		06	300 GB		06	300 GB		06	300 GB	
05	300 GB		05	300 GB		05	300 GB		05	300 GB	
04	300 GB		04	300 GB		04	300 GB		04	300 GB	
03	300 GB		03	300 GB		03	300 GB		03	300 GB	
02	300 GB		02	300 GB		02	300 GB		02	300 GB	
01	300 GB		01	300 GB		01	300 GB		01	300 GB	
00	300 GB		00	300 GB		00	300 GB		00	300 GB	

DE#00	DE#01	DE#02	DE#03								
Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity	Disk#	Disk Drive	Capacity
0E	750 GB(S)		0E	750 GB(S)		0E	750 GB(S)		0E	750 GB(S)	
0D	300 GB		0D	300 GB		0D	300 GB		0D	300 GB	
0C	750 GB(S)		0C	750 GB(S)		0C	750 GB(S)		0C	750 GB(S)	
0B	750 GB(S)		0B	750 GB(S)		0B	750 GB(S)		0B	750 GB(S)	
0A	300 GB		0A	300 GB		0A	300 GB		0A	300 GB	
09	300 GB		09	300 GB		09	300 GB		09	300 GB	
08	300 GB		08	300 GB		08	300 GB		08	300 GB	
07	300 GB		07	300 GB		07	300 GB		07	300 GB	
06	300 GB		06	300 GB		06	300 GB		06	300 GB	
05	300 GB		05	300 GB		05	300 GB		05	300 GB	
04	300 GB		04	300 GB		04	300 GB		04	300 GB	
03	73 GB		03	73 GB		03	73 GB		03	73 GB	
02	73 GB		02	73 GB		02	73 GB		02	73 GB	
01	73 GB		01	73 GB		01	73 GB		01	73 GB	
00	73 GB		00	73 GB		00	73 GB		00	73 GB	

[Set] [Return]

→ The [Create/Extend Thin Provisioning Pool (RAID Group Settings in Pool)] screen appears.

When adding multiple RAID Groups in the Thin Provisioning Pool, repeat [Step 4](#) and [Step 5](#) as required.

After adding RAID Groups to the Thin Provisioning Pool completes, move on to [Step 6](#).

Restrictions for disk layout varies depending on the RAID level of the RAID Groups added in the Thin Provisioning Pool. Refer to ["Restrictions for Disk Layout" \(page 253\)](#) for details.

**Caution** 

- Select disk drives with the same capacity. If disk drives of different capacities exist in a RAID Group, the smallest becomes the standard, and all other disks are regarded as the same capacity as the smallest disk drive. In this case, the remaining disk space will NOT be used.
  - When clicking the [Set] button in the following conditions, an error screen appears.
    - When entering characters other than ASCII code (0x20 – 0x7E) as RAID Group Name
    - When entering the existing RAID Group name
    - When the number of selected disk drives and the [Number of configuration disks] in the RAID Group settings do not match
    - When the FC-Loop where the selected disk belongs does not meet conditions for each RAID level
- For the disk layout restrictions for each RAID level, refer to ["Restrictions for Disk Layout" \(page 253\)](#).

**6** Click the [Set] button.

Please click on the link with the RAID Group No. to specify the target disks for the RAID Group.

Thin Provisioning Pool Settings						
TPP No.	Disk Name	Type	Reliability	Capacity (MB)	Used Capacity(MB)	Encryption
0x0C	pool_0C	Online	High	1680384	0	Yes

RAID Group Settings				
RAID Group No.	RAID Name	RAID Level	Controlling CM	Capacity (MB)
0x14C	raid_14C	RAID1+0	CM#0-CPU#0	560128
0x14D	raid_14D	RAID1+0	CM#1-CPU#1	560128
0x14E	raid_14E	RAID1+0	CM#2-CPU#0	560128

3 Groups - Page 1/1

→ The [Create/Extend Thin Provisioning Pool (Check)] screen appears.

**Caution** 

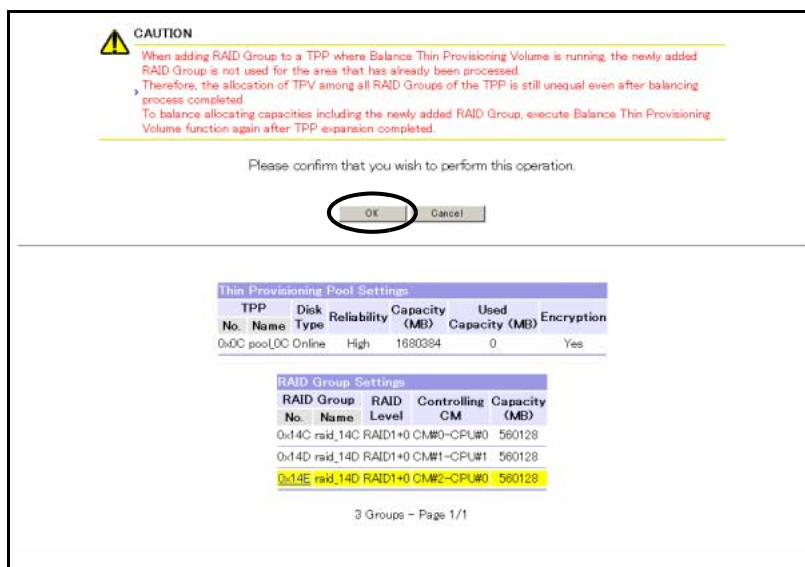
- When clicking the [Set] button in the following conditions, an error screen appears.
- When there are RAID Groups without configuration disks (RAID Groups without yellow backgrounds exist)
  - When the total value of Thin Provisioning Pool (TPP) capacity to be created and existing TPP capacity exceeds the maximum TPP capacity for each model

 **Note**

When the Method for selecting disks is [Auto], the RAID Group name is not set. When changing the RAID Group name, click the [RAID Group No.] link for the target RAID Group. The [RAID Group Name] can be specified in the displayed [Create Thin Provisioning (Select Disk Drive)] screen. Note that RAID Group name can be also changed using the [Rename RAID Group] function.

## 7 Click the [OK] button.

Newly added RAID Groups are displayed with a yellow background.



→ When the [Create/Extend Thin Provisioning Pool (Updating Configuration Information)] screen appears and the operation completes successfully, the [Create/Extend Thin Provisioning Pool (Result)] screen appears.

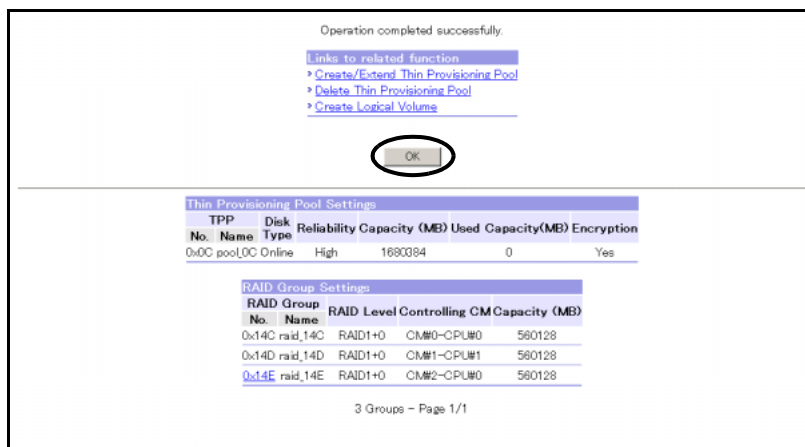
### Caution

When expanding the Thin Provisioning Pool (TPP) capacity, RAID Groups are added in the TPP. A RAID Group obtains the Resource according to the volume number, and a single RAID Group is used as a single volume. After expanding TPP capacity, added RAID Groups are formatted. When exceeding the maximum capacity of volumes that can be formatted at the same time, a message to that effect appears. Wait until the current format process is complete, and then format the added RAID Groups (unformatted area of the TPP).

### Note

- Clicking the [RAID Group No.] link displays the disk drives configuring the RAID Group.
- When the RAID Group name is changed, the [Create/Extend Thin Provisioning Pool (Setting RAID Group Name)] screen appears after the [Create/Extend Thin Provisioning Pool (Updating Configuration Information)] screen.

**8** Click the [OK] button.



→ Returns to the [Menu] screen.

**Caution**

The [Delete Thin Provisioning Pool] link is displayed only when logged on with a user account whose role supports the [Delete Thin Provisioning Pool] function.

**Note**

- Click the [Create/Extend Thin Provisioning Pool] link to continue the Thin Provisioning Pool creation.
- Click the [Delete Thin Provisioning Pool] link to delete the Thin Provisioning Pool.
- Click the [Create Logical Volume] link to create Thin Provisioning Volumes.

End of procedure

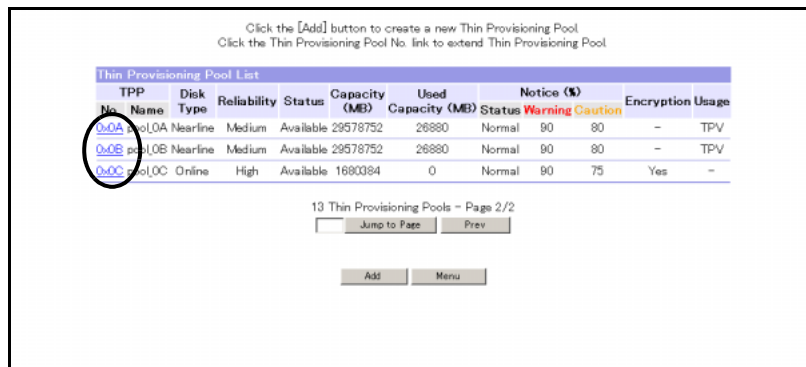
### 5.3.1.3 Change Thin Provisioning Pool Name

This section describes how to rename the Thin Provisioning Pool.

#### Procedure

- 1 Click [Create/Extend Thin Provisioning Pool] under the Thin Provisioning Management in the [Configuration] menu.  
 → The [Create/Extend Thin Provisioning Pool (Select Pool)] screen appears.

**2** Click the [TPP No.] link for the Thin Provisioning Pool to be renamed.

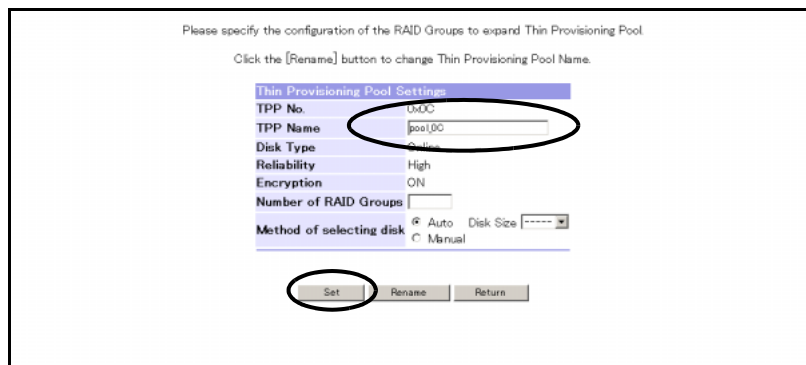


→ The [Create/Extend Thin Provisioning Pool (Pool Setting (Rename))] screen appears.

**Caution**

When no Thin Provisioning Pool is registered in the device, a message to that effect is displayed. Click the [Menu] button to return to the [Menu] screen.

**3** Input the new Thin Provisioning Pool name into the TPP Name text box, and click the [Rename] button.

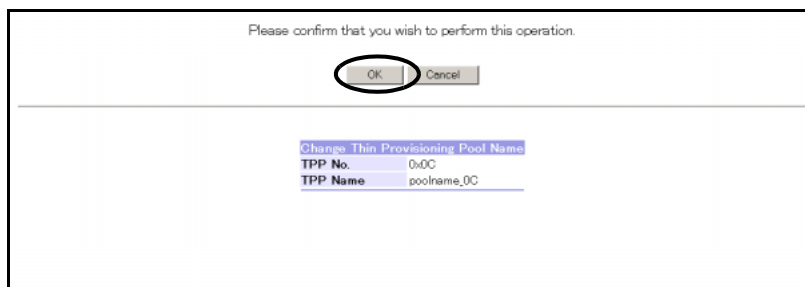


→ The [Create/Extend Thin Provisioning Pool (Check Rename Pool)] screen appears.

**Caution**

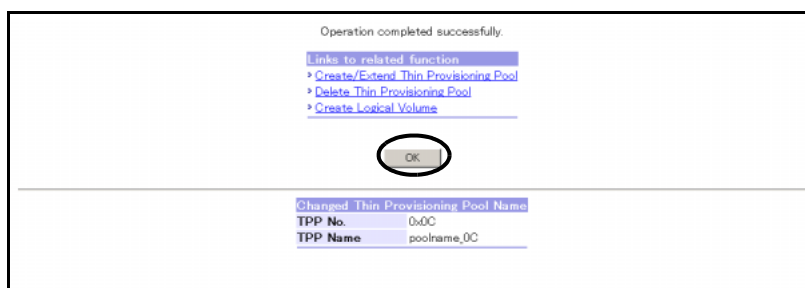
- Renaming TPP and TPP expansion operations cannot be performed at the same time. Rename the TPP first, and then expand the TPP capacity.
- Renaming multiple TPP is not allowed. Change the TPP name one by one.
- When clicking the [Rename] button in the following conditions, an error screen appears.
  - When entering characters other than ASCII code (0x20 – 0x7E) as TPP Name
  - When entering existing Pool name as the TPP name
  - When the TPP name is not changed

**4** Click the [OK] button.



→ When the [Create/Extend Thin Provisioning Pool (Updating Configuration Information)] screen appears and the operation completes successfully, the [Create/Extend Thin Provisioning Pool (Rename Pool Result)] screen appears.

**5** Click the [OK] button.



→ Returns to the [Menu] screen.

**Caution**



The [Delete Thin Provisioning Pool] link is displayed only when logged on with a user account whose role supports the [Delete Thin Provisioning Pool] function.



**Note**

- Click the [Create/Extend Thin Provisioning Pool] link to continue the Thin Provisioning Pool creation.
- Click the [Delete Thin Provisioning Pool] link to delete the Thin Provisioning Pool.
- Click the [Create Logical Volume] link to create Thin Provisioning Volumes.

**End of procedure**

## 5.3.2 Set Thin Provisioning Pool Parameters

This function sets the thresholds for notification of a Thin Provisioning Pool shortage. There are two thresholds for Thin Provisioning Pools: Caution and Warning.

### Caution



- When there are no Thin Provisioning Pools registered in the ETERNUS DX400/DX8000 series, the [Set Thin Provisioning Pool Parameters] function cannot be executed.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Thin Provisioning Pools to which the thresholds can be set differ depending on the current user account.
  - When logged on using a Total Administrator account, the thresholds of all the Thin Provisioning Pools that are assigned to Resource Domains can be set.
  - When logged on using a Resource Domain Administrator account, the thresholds of only the Thin Provisioning Pools that are assigned to the relevant Resource Domain and the Shared Resource can be set.



### Note

- The following two methods are available for notification of a Thin Provisioning Pool shortage.
  - SNMP Trap
  - ETERNUS SF Storage Cruiser
- If "Caution" or "Warning" is displayed in the status field of notification, immediately expand disk drives.

This section describes how to set the Thin Provisioning Pool parameters.

## Procedure

- 1 Click [Set Thin Provisioning Pool Parameters] under the Thin Provisioning Management in the [Configuration] menu.
  - The [Set Thin Provisioning Parameters (Notification Setting)] screen appears.
  - Refer to ["A.14.1 Set Thin Provisioning Pool Parameters \(Notification Setting\) Screen" \(page 735\)](#) for screen details.

### Caution



If the thresholds of a Thin Provisioning Pool cannot be specified, a message to that effect is displayed. Click the [OK] button to return to the [Menu] screen.

## 2 Set the thresholds for Thin Provisioning Pool, and click the [Set] button.

There are two thresholds for Thin Provisioning Pools.

- Warning  
Warning (high) threshold for the target Thin Provisioning Pool (required).
- Caution  
Warning (low) threshold for the target Thin Provisioning Pool (can be omitted).

The two methods below show how to specify the thresholds.

- Manual setting (multiple specification can be made)  
Input the threshold (%) in the Warning and Caution text boxes of the Thin Provisioning Pool List.
- Set Range  
Enter the first and last Thin Provisioning Pool numbers to set thresholds in the From/To fields.  
Select the threshold types from "Both", "Warning only", or "Caution only".  
Input the threshold to be changed in the Warning and Caution text box, and click the [Execute] button.

TPP No.	Name	Disk Type	Reliability	Status	Capacity (MB)	Used Capacity (MB)	Status	Warning	Caution	Encryption	Usage
0x00	pool_00	Online	High	Available	3360768	0	Normal	90		Yes	-
0x01	pool_01	Online	High	Available	3360768	134400	Normal	90	75	Yes	TPV
0x02	pool_02	Online	High	Available	3360768	134400	Normal	90	75	Yes	TPV
0x03	pool_03	Online	High	Available	3360768	134400	Normal	90	75	Yes	TPV
0x04	pool_04	Online	High	Available	3360768	134400	Normal	90	75	Yes	TPV
0x05	pool_05	Online	High	Available	3360768	134400	Normal	90	75	Yes	TPV
0x06	pool_06	Nearline	Medium	Available	29578752	26880	Normal	90	90	-	TPV
0x07	pool_07	Nearline	Medium	Available	29578752	26880	Normal	90	90	-	TPV
0x08	pool_08	Nearline	Medium	Available	29578752	26880	Normal	90	90	-	TPV
0x09	pool_09	Nearline	Medium	Available	29578752	26880	Normal	90	90	-	TPV

13 Thin Provisioning Pools - Page 1/2

Jump to Page: [ ] Next

Set Range

From : TPP No.0x [ ] To : TPP No.0x [ ]

Warning: [ ] Caution: [ ]

☒ Both ☐ Warning only ☐ Caution only

Execute

Set Menu

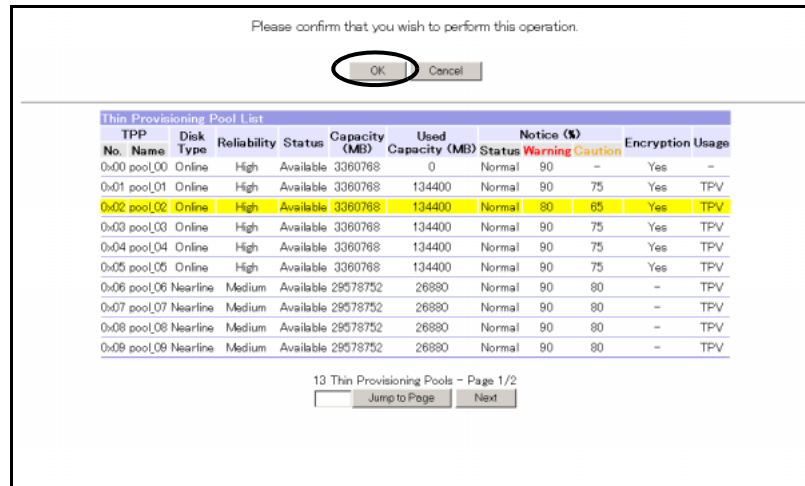
→ The [Set Thin Provisioning Pool Parameters (Check)] screen appears.

**Caution** 

- When using the Set Range, and if the [Execute] button is clicked in the following situations, an error screen appears.
  - Both of or one of the "From" or "To" text boxes is blank.
  - A value has been input in characters other than alphanumeric characters (hexadecimal) in the "From" and/or "To" text box.
  - No Thin Provisioning Pools to be the target of this function are included between the range specified with the "From" and "To" text boxes.
  - When "Warning only" is selected, and no values or characters other than numerals (5 – 99) are entered in the Warning text box.
  - When "Caution only" is selected, and no values or characters other than numerals (5 – 80) are entered in the Caution text box.
  - When "Both" is selected, and no values or characters other than numerals (5 – 99) are entered in the Warning text box.
  - When "Both" is selected, and no values or characters other than numerals (5 – 80) are entered in the Caution text box.
  - When "Both" is selected, and the Warning threshold is smaller than the Caution threshold.
  - When "Warning only" is selected, and the Warning thresholds is smaller than the Caution threshold specified for the target Thin Provisioning Pool.
  - When "Caution only" is selected, and the Caution thresholds is larger than the Warning threshold specified for the target Thin Provisioning Pool.
- When clicking the [Jump to Page], [Next], [Prev], or [Set] button in the following conditions, an error screen appears. This function performs error checking for each page of the Thin Provisioning Pool List. Thin Provisioning Pools where the threshold will be changed are displayed with a yellow background.
  - When the Warning text box in the Thin Provisioning Pool List is blank.
  - When characters other than numerals (5 – 99) are entered for the Warning text box in the Thin Provisioning Pool List.
  - When characters other than numerals (5 – 80) are entered for the Caution text box in the Thin Provisioning Pool List.
  - When the value entered for the Warning text box in the Thin Provisioning Pool List is smaller than Caution text box value.
- When the [Set] button is clicked without changing the thresholds in the Thin Provisioning Pool List, an error screen appears.

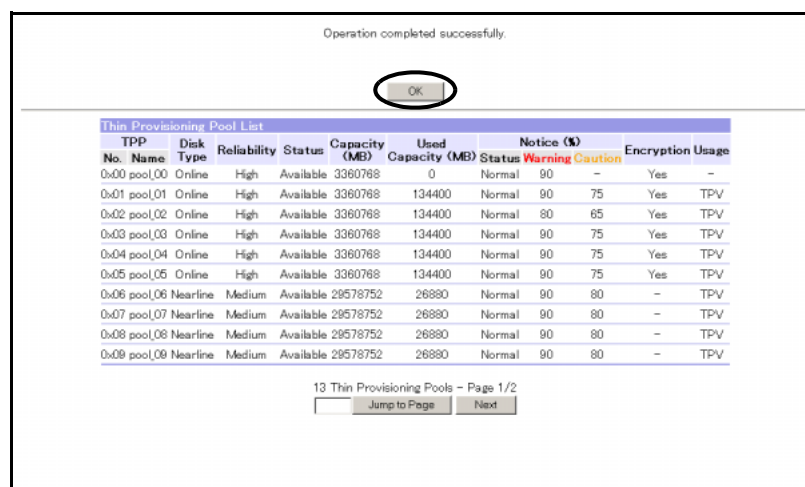
**3** Click the [OK] button.

Thin Provisioning Pools where the threshold will be changed are displayed with a yellow background.



→ When the [Set Thin Provisioning Pool Parameters (Updating Configuration Information)] screen appears and the operation completes successfully, the [Set Thin Provisioning Pool Parameters (Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 5.3.3 Format Thin Provisioning Pool

This function formats the Thin Provisioning Pool. Select whether to format all the registered Thin Provisioning Pools or format only the unformatted Thin Provisioning Pools.

#### Caution



- When formatting all the registered Thin Provisioning Pools (TPP), data stored in the Thin Provisioning Volumes (TPV) in TPP will be deleted. Format TPV to use them again, after deleting data. Use the [Format Logical Volume] function to format TPV.
- If a Thin Provisioning Pool (TPP) is created using the [Create/Extend Thin Provisioning Pool] function, the created TPP will be formatted automatically. In this case, it is not necessary to format the TPP using the [Format Thin Provisioning Pool] function.
- When a TPP, to which the currently balancing TPV belongs, is formatted, an error occurs and the balancing TPV is stopped.
- When a TPP, to which the currently migrating TPV belongs, is formatted, an error occurs and the RAID Migration is stopped.
- The [Format Thin Provisioning Pool] function cannot be used in the following conditions:
  - When no Thin Provisioning Pools are registered
  - When no Thin Provisioning Pools can be formatted
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the Thin Provisioning Pools that can be formatted differ depending on the current user account.
  - When logged on using a Total Administrator account, all the Thin Provisioning Pools that are assigned to Resource Domains can be formatted.
  - When logged on using a Resource Domain Administrator account, only the Thin Provisioning Pools that are assigned to the relevant Resource Domain, and only the Thin Provisioning Pools that are assigned to the Shared Resource, can be formatted.



#### Note

Refer to the [Thin Provisioning Pool List] function for format progress.

This section describes how to format the Thin Provisioning Pools.

#### Procedure

- 1 Click [Format Thin Provisioning Pool] under the Thin Provisioning Management in the [Configuration] menu.
  - The [Format Thin Provisioning Pool (Select Format Type)] screen appears.Refer to "[A.15.1 Format Thin Provisioning Pool \(Select Format Type\) Screen](#)" ([page 737](#)) for screen details.

**Caution** 

When no Thin Provisioning Pools that can be formatted exist, a message to that effect is displayed. Click the [OK] button to return to the [Menu] screen.

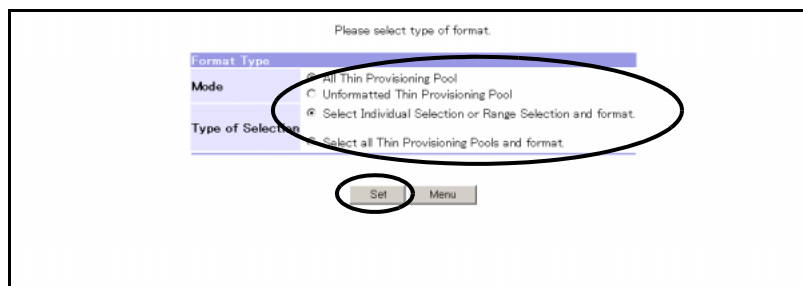
**2** Select the "Mode" and "Type of Selection" for the target Thin Provisioning Pool, and click the [Set] button.

There are two Modes to select Thin Provisioning Pool as follows:

- All Thin Provisioning Pool  
Select the Thin Provisioning Pools whose status is "Available", "Partially Ready", or "Ready". When performing the format, data stored in the Thin Provisioning Volumes created in the target Thin Provisioning Pool will be deleted.
- Unformatted Thin Provisioning Pool  
Select the Thin Provisioning Pools whose status is "Partially Ready" or "Ready". Data stored in the Thin Provisioning Volumes created in the target Thin Provisioning Pool will not be deleted. "Unformatted Thin Provisioning Pool" indicates an additional area in the Thin Provisioning Pool expanded by another function, such as capacity expansion.

There are two methods to select Thin Provisioning Pools.

- Select Individual Selection or Range Selection and format.  
→ The [Format Thin Provisioning Pool (Select Pool)] screen appears. Move on to [Step 3](#).
- Select all Thin Provisioning Pools and format.  
→ The [Format Thin Provisioning Pool (Check)] screen appears. Move on to [Step 4](#).



**Caution** 

When all the Thin Provisioning Pools that can be formatted are in "Available" status, "Unformatted Thin Provisioning Pool" is not displayed as the Mode.

### 3 Select the Thin Provisioning Pool to be formatted, and click the [Set] button.

There are two methods to select Thin Provisioning Pools.

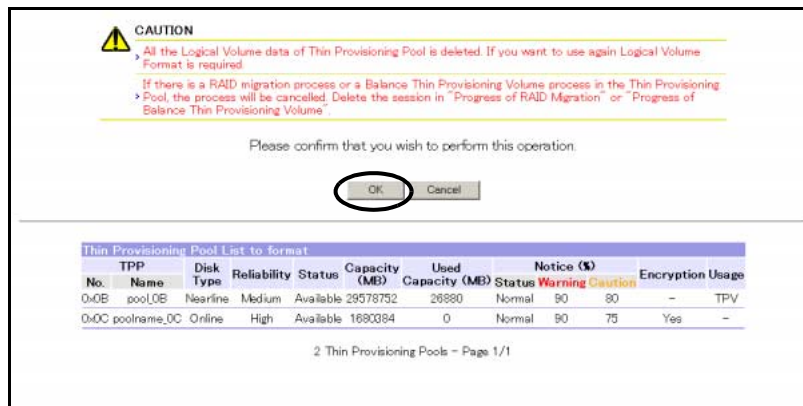
- Individual Selection (multiple selections can be made)  
 Select the Thin Provisioning Pools to be formatted from the Thin Provisioning Pool List.
- Range Selection  
 Enter the first and last Thin Provisioning Pool numbers to be formatted in the From/To fields.  
 Thin Provisioning Pools displayed with a checkbox in the specified range will be formatted.

→ The [Format Thin Provisioning Pool (Check)] screen appears.

#### Caution

- If selecting "All Thin Provisioning Pool" as the Mode, data in the Thin Provisioning Volume created in the target Thin Provisioning Pool will be deleted.
- When clicking the [Set] button in the following conditions, an error screen appears.
  - When Individual Selection is selected, and no Thin Provisioning Pools (TPP) are specified for formatting.
  - When Range Selection is selected, and both or one of the From: TPP No. or To: TPP No. text boxes is blank.
  - When Range Selection is selected, and characters other than numeric or alphabetic characters [a] – [f] or [A] – [F] are specified in the From: TPP No. or To: TPP No. field.
  - When Range Selection is selected, and there are no TPPs that can be formatted in the range specified with From: TPP No. and To: TPP No..

4 Click the [OK] button.

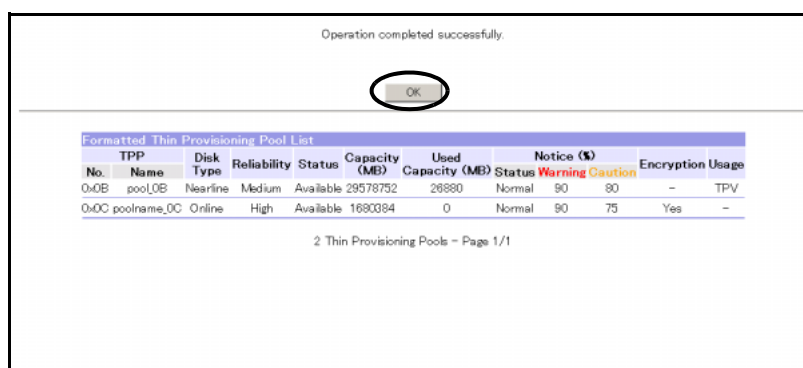


→ Formatting is started and the [Format Thin Provisioning Pool (Starting Formatting Process)] screen appears.  
 When the format starting process is completed, the [Format Thin Provisioning Pool (Result)] screen appears.

**Caution**

- If selecting "All Thin Provisioning Pool" as the Mode, data in the Thin Provisioning Volume created in the target Thin Provisioning Pool will be deleted.
- A Thin Provisioning Pool (TPP) is configured with multiple RAID Groups. A RAID Group obtains the Resource according to the volume number, and a single RAID Group is used as a single volume. When formatting a TPP, all the RAID Groups that configure the TPP are also formatted. When exceeding the maximum capacity of volumes that can be formatted at the same time, a message to that effect appears. Wait until the current format process is complete, and then format the unformatted area of the TPP.

5 Click the [OK] button.



→ Returns to the [Menu] screen.

---

**Caution**



After selecting "All Thin Provisioning Pool" as the Mode and the format is complete, the Thin Provisioning Volume (TPV) must be formatted in order to use TPV again in the formatted Thin Provisioning Pool.

---



**Note**

Refer to the [Thin Provisioning Pool List (Pool Format Progress Display)] screen of the [Thin Provisioning Pool List] function for format progress.

---

**End of procedure**

---

### 5.3.4 Rename RAID Group

---

This function changes the RAID Group name without stopping host access. Refer to ["5.2.2 Rename RAID Group" \(page 151\)](#) for details.

### 5.3.5 Change Controlling CM of RAID Group

---

This function changes the CM assigned to the RAID Group created in the device, without stopping the device. Refer to ["5.2.3 Change Controlling CM of RAID Group" \(page 153\)](#) for details.

### 5.3.6 Delete Thin Provisioning Pool

---

This function deletes the Thin Provisioning Pool. When deleting the Thin Provisioning Pool, RAID Groups that configures the deleted Thin Provisioning Pool are also deleted.

---

**Caution**

- Thin Provisioning Pools which have volumes registered cannot be deleted. When deleting a Thin Provisioning Pool, delete the volumes beforehand. To delete volumes, use the [Delete Logical Volume] function.
- The [Delete Thin Provisioning Pool] function cannot be used in the following conditions:
  - When there are no Thin Provisioning Pools that can be deleted
  - When all the Thin Provisioning Pools that can be deleted have volumes registered
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the Thin Provisioning Pools that can be deleted differ depending on the current user account.
  - When logged on using a Total Administrator account, all the Thin Provisioning Pools that are assigned to Resource Domains can be deleted.
  - When logged on using a Resource Domain Administrator account, only the Thin Provisioning Pools that are assigned to the relevant Resource Domain, and only the Thin Provisioning Pools that are assigned to the Shared Resource, can be deleted.

---

This section describes how to delete the Thin Provisioning Pools.

---

#### Procedure

- 1 Click [Delete Thin Provisioning Pool] under the Thin Provisioning Management in the [Configuration] menu.  
→ The [Delete Thin Provisioning Pool (Select Pool)] screen appears.

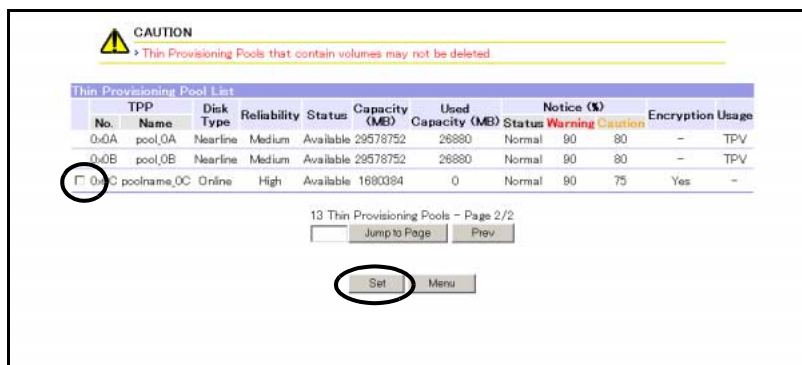
---

**Caution**

If there are no Thin Provisioning Pools to be deleted, the [Delete Thin Provisioning Pool] function cannot be executed. If a message to that effect appears, click the [OK] button to return to the [Menu] screen.

---

**2** Select the Thin Provisioning Pool to be deleted, and click the [Set] button.

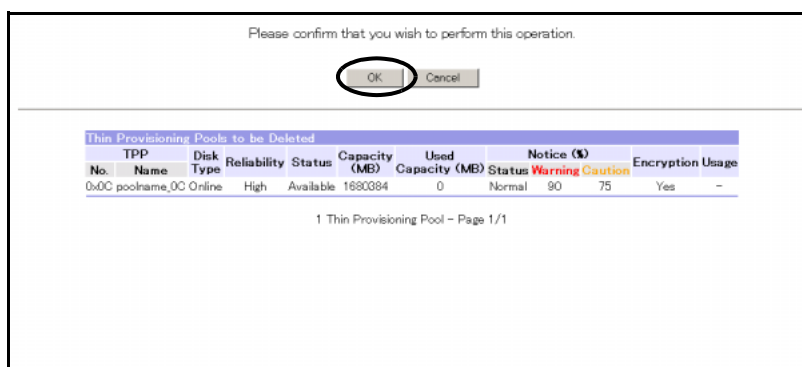


→ The [Delete Thin Provisioning Pool (Check)] screen appears.

**Caution**

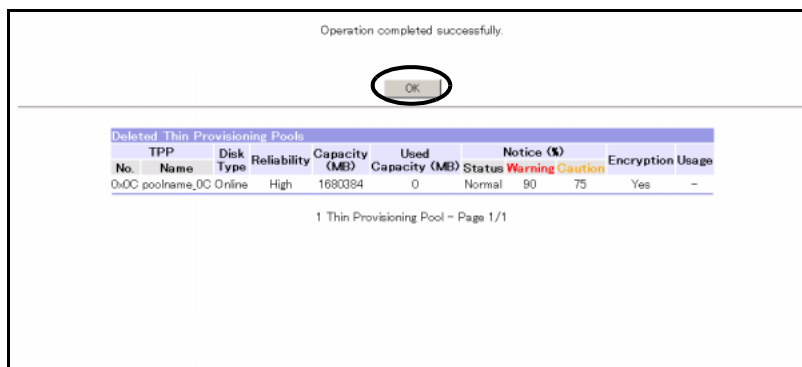
- Thin Provisioning Pools which have volumes registered cannot be deleted. Checkboxes are displayed only for Thin Provisioning Pools that can be deleted.
- If the [Set] button is clicked without selecting the target Thin Provisioning Pool, an error screen appears.

**3** Click the [OK] button.



→ When the [Delete Thin Provisioning Pool (Updating Configuration Information)] screen appears and the operation completes successfully, the [Delete Thin Provisioning Pool (Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 5.3.7 Create Logical Volume

This function creates a volume in a registered RAID Group or Thin Provisioning Pool without stopping ETERNUS DX400/DX8000 series operations. Refer to ["5.2.6 Create Logical Volume" \(page 167\)](#) for details.

### 5.3.8 Rename Logical Volume

This function changes the volume name without stopping host access. Refer to ["5.2.8 Rename Logical Volume" \(page 197\)](#) for details.

### 5.3.9 Set Thin Provisioning Volume Parameters

This function sets the thresholds for monitoring shortages of the Thin Provisioning Pool for each volume.

#### Caution

- When there are no Thin Provisioning Volumes registered, the [Set Thin Provisioning Volume Parameters] function cannot be used.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Thin Provisioning Volumes to which the thresholds can be set differ depending on the current user account.
  - When logged on using a Total Administrator account, the thresholds of all the Thin Provisioning Volumes that are assigned to Resource Domains can be set.
  - When logged on using a Resource Domain Administrator account, the thresholds of only the Thin Provisioning Volumes that are assigned to the relevant Resource Domain, and only the Thin Provisioning Volumes that are assigned to the Shared Resource, can be set.

#### Note

- This function monitors the Thin Provisioning Pool (TPP) shortage for each Thin Provisioning Volume. If unused TPP capacity becomes less than the non-allocated Thin Provisioning Volume capacity threshold value, "Caution" is displayed in the Status of the Notice field. TPP is used by multiple volumes. Therefore, if the amount of areas allocated to other volumes in the TPP increases, other volumes with small allocation (volumes that are not accessed from the host very often) may be in the "Caution" state. Consider the access status of volumes in TPP and expand the TPP capacity. Use the [Create/Extend Thin Provisioning Pool] function to expand the TPP capacity.
- Notification destination of Thin Provisioning Pool shortage for each volume is only the ETERNUS SF Storage Cruiser.

This section describes how to set the Thin Provisioning Volume parameters.

#### Procedure

- 1 Click [Set Thin Provisioning Volume Parameters] under the Thin Provisioning Management in the [Configuration] menu.
  - The [Set Thin Provisioning Volume Parameters (Notification Setting)] screen appears. Refer to ["A.16.1 Set Thin Provisioning Volume Parameters \(Notification Setting\) Screen" \(page 738\)](#) for screen details.

#### Caution

If the thresholds for a Thin Provisioning Volume cannot be specified, a message to that effect is displayed. Click the [OK] button to return to the [Menu] screen.

## 2 Set the thresholds, and click the [Set] button.

There are two methods to specify the thresholds:

- Manual setting (multiple specification can be made)  
 Input the threshold (%) in the Caution text box of the Volume List.
- Set Range  
 Input the first and last volume numbers to set the threshold in the From/To fields.  
 Input the threshold to be changed in the Caution text box, and click the [Execute] button.

The screenshot displays the 'Volume List' table and the 'Set Range' dialog box. The 'Volume List' table has columns: Mainframe#, Open#, Name, Status, Volume Type, Encryption, Capacity (MB), Status Reading, Notice (%), Caution, and TPP. The 'Set Range' dialog box has fields for 'From : Volume# 0x' and 'To : Volume# 0x', a 'Caution' text box, and an 'Execute' button. Below the dialog box are 'Set' and 'Menu' buttons. A yellow highlight is visible in the 'Caution' column of the Volume List table.

Mainframe#	Open#	Name	Status	Volume Type	Encryption	Capacity (MB)	Status Reading	Notice (%)	Caution	TPP
-	0x0100	vol_0100	Available	TPV	Yes	65536	Normal	80	10	0x01 pool_01
-	0x0101	vol_0101	Available	TPV	Yes	65536	Normal	80	10	0x01 pool_01
-	0x0102	vol_0102	Available	TPV	Yes	65536	Normal	80	10	0x01 pool_01
-	0x0103	vol_0103	Available	TPV	Yes	65536	Normal	80	10	0x01 pool_01
-	0x0104	vol_0104	Available	TPV	Yes	65536	Normal	80	10	0x01 pool_01
-	0x0105	vol_0105	Available	TPV	Yes	65536	Normal	80	10	0x02 pool_02
-	0x0106	vol_0106	Available	TPV	Yes	65536	Normal	80	10	0x02 pool_02
-	0x0107	vol_0107	Available	TPV	Yes	65536	Normal	80	10	0x02 pool_02
-	0x0108	vol_0108	Available	TPV	Yes	65536	Normal	80	10	0x02 pool_02
-	0x0109	vol_0109	Available	TPV	Yes	65536	Normal	80	10	0x02 pool_02

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Set Range  
 From : Volume# 0x To : Volume# 0x  
 Caution  
 Execute

Set Menu

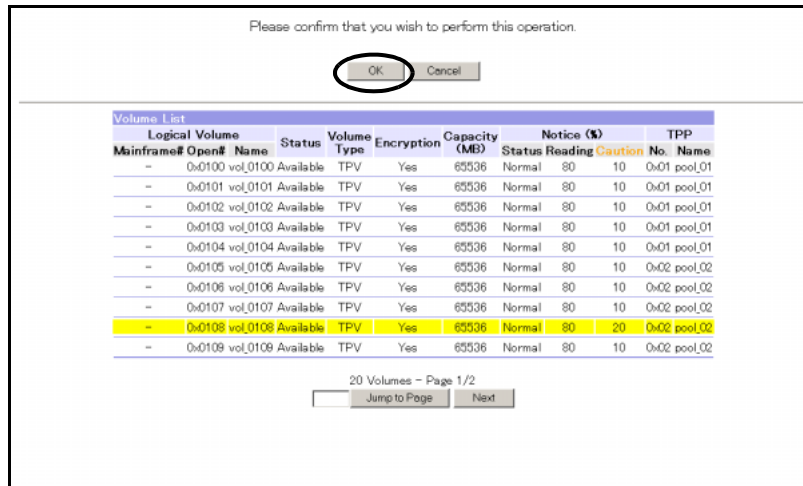
→ The [Set Thin Provisioning Volume Parameters (Check)] screen appears.

### Caution

- When using the Set Range, and if the [Execute] button is clicked in the following situations, an error screen appears.
  - Both of or one of the "From" or "To" text boxes is blank
  - A value other than alphanumeric characters (hexadecimal) has been input as "From" and/or "To" text box
  - No volumes to be the target of this function are included between the range specified with the "From" and "To" text boxes
  - The Caution text box is blank
  - A value other than numerals (1 – 200) has been input in the Caution text box
- If clicking the [Jump to Page], [Next], [Prev], or [Set] button in the following conditions, an error screen appears. This function performs the error checking for each page of the Volume List. Volumes where the threshold will be changed are displayed with a yellow background.
  - The Caution text box in the Volume List is blank
  - A value other than numerals (1 – 200) has been input in the Caution text box of Volume List
- If clicking the [Set] button without changing the thresholds in the Volume List, an error screen appears.

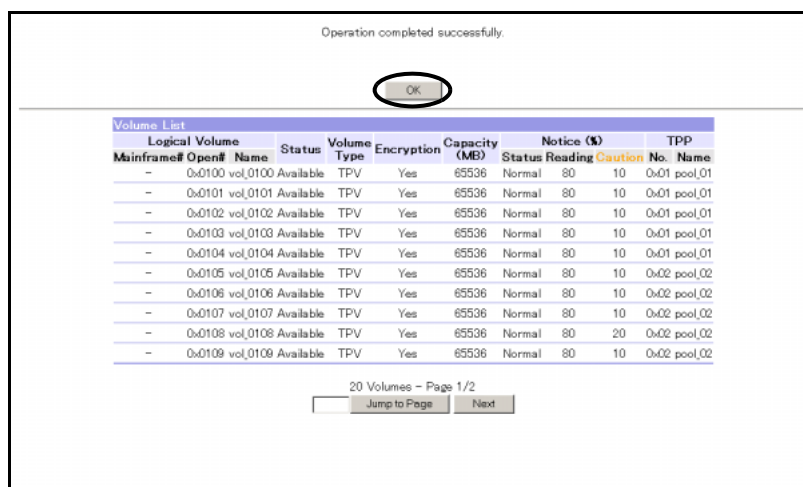
**3** Click the [OK] button.

Thin Provisioning Volumes where the threshold will be changed are displayed with a yellow background.



→ When [Set Thin Provisioning Volume Parameters (Updating Configuration Information)] screen appears and the operation completes successfully, the [Set Thin Provisioning Volume Parameters (Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 5.3.10 Format Logical Volume

This function formats the Thin Provisioning Pool. Refer to ["5.2.10 Format Logical Volume" \(page 204\)](#) for details.

### 5.3.11 Thin Provisioning Volume Expansion

This function expands the Thin Provisioning Volume capacity.

■ Conditions of Thin Provisioning Volumes (TPV) that can be expanded:

- Capacity of the target TPV must not exceed 32TB (33,554,432MB)
- No Advanced Copy session is registered in the target TPV
- No Remote Advanced Copy session is registered in the target TPV

■ The maximum capacity of Thin Provisioning Pool (TPP) for each model

Model	Maximum TPP Capacity (TB)
ETERNUS DX410	312
ETERNUS DX440	630
ETERNUS DX8100	630
ETERNUS DX8400	1024
ETERNUS DX8700	1024

**Caution**



- After expanding the Thin Provisioning Volume capacity, the volume capacity change must be recognized by the server. Refer to the manuals of each OS or file system for information about server operation.
- Expanding the capacity of a Thin Provisioning Volume is not available when the relevant Thin Provisioning Volume is being balanced.
- Expanding the capacity of a Thin Provisioning Volume is not available when the relevant Thin Provisioning Pool is a migration source of the RAID Migration that is being performed.
- The [Thin Provisioning Volume Expansion] function cannot be used in the following conditions:
  - When there are no Thin Provisioning Volumes registered
  - When there is no free area to be expanded in the ETERNUS DX400/DX8000 series
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the Thin Provisioning Volumes that can be expanded differ depending on the current user account.
  - When logged on using a Total Administrator account, all the Thin Provisioning Volumes that are assigned to Resource Domains can be expanded.
  - When logged on using a Resource Domain Administrator account, only the Thin Provisioning Volumes that are assigned to the relevant Resource Domain, and only the Thin Provisioning Volumes that are assigned to the Shared Resource, can be expanded.



**Note**

When expanding the Thin Provisioning Volume (TPV), Thin Provisioning Pool (TPP) capacity for each TPV may exceed the thresholds. Expand the TPP capacity as required. Use the [Create/Extend Thin Provisioning Pool] menu to expand the TPP capacity. Refer to the [Thin Provisioning Pool List] menu for thresholds for each TPV.

This section describes how to expand the Thin Provisioning Volume capacity.

## Procedure

- 1 Click [Thin Provisioning Volume Expansion] under the Thin Provisioning Management in the [Configuration] menu.  
 → The [Thin Provisioning Volume Expansion (Capacity Expansion)] screen appears.



**Caution**

If the capacity of the Thin Provisioning Volume cannot be expanded, a message to that effect is displayed. Click the [OK] button to return to the [Menu] screen.

- 2 Input the new capacity in the capacity text box of the target Thin Provisioning Volume, and click the [Set] button.

Volume List							
Mainframe#	Open#	Name	Status	Volume Type	Encryption	Capacity (MB)	TPP No. Name
-	0x0100	vol_0100	Available	TPV	Yes	65536	0x01 pool_01
-	0x0101	vol_0101	Available	TPV	Yes	65536	0x01 pool_01
-	0x0102	vol_0102	Available	TPV	Yes	65536	0x01 pool_01
-	0x0103	vol_0103	Available	TPV	Yes	65536	0x01 pool_01
-	0x0104	vol_0104	Available	TPV	Yes	65536	0x01 pool_01
-	0x0105	vol_0105	Available	TPV	Yes	65536	0x02 pool_02
-	0x0106	vol_0106	Available	TPV	Yes	65536	0x02 pool_02
-	0x0107	vol_0107	Available	TPV	Yes	65536	0x02 pool_02
-	0x0108	vol_0108	Available	TPV	Yes	65536	0x02 pool_02
-	0x0109	vol_0109	Available	TPV	Yes	65536	0x02 pool_02

Free : 1072431104 (MB)

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Set Menu

→ The [Thin Provisioning Volume Expansion (Check)] screen appears.

**Caution**

- If clicking the [Jump to Page], [Next], [Prev], or [Set] button in the following conditions, an error screen appears. This function performs the error checking for each page of the Volume List. Volumes where the capacity will be expanded are displayed with a yellow background.
  - The capacity text box in the Volume List is blank
  - A value other than numerals (24 – 33,554,432) has been input in the capacity text box of Volume List
  - A value smaller than the current capacity in the capacity text box of Volume List
  - The total capacity of all Thin Provisioning Volumes in the ETERNUS DX400/DX8000 series exceeds the maximum Thin Provisioning Pool capacity for each model
- If clicking the [Set] button without expanding the capacity, an error screen appears.

**Note**

Available capacity for Thin Provisioning Volume expansion is displayed in the "Free" field. "Free" capacity is updated when clicking the [Jump to Page], [Next], [Prev], or [Set] button according to the input capacity. If an incorrect value is input, "Free" is calculated from the correct value before changing the capacity. When the total capacity of all Thin Provisioning Volumes in the ETERNUS DX400/DX8000 series exceeds the maximum Thin Provisioning Pool capacity for each model, [0 (MB)] is displayed in the "Free" field.

**3** Click the [OK] button.

Thin Provisioning Volumes where the capacity will be expanded are displayed with a yellow background.

Please confirm that you wish to perform this operation.

OK Cancel

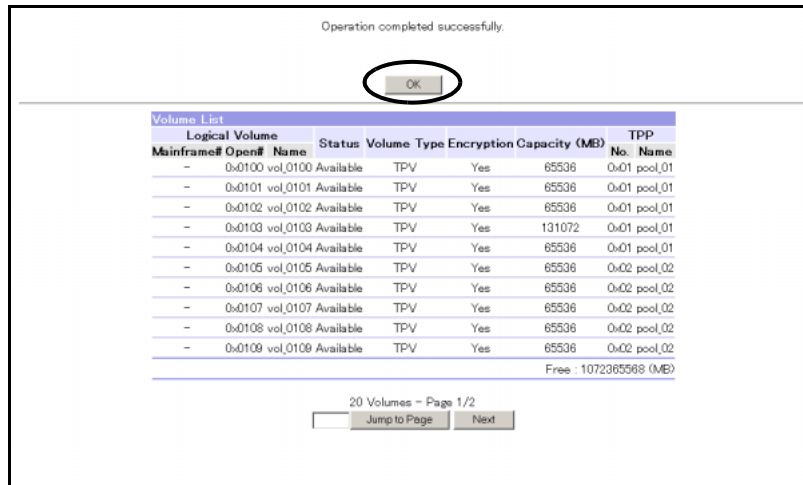
Volume List								
Logical Volume	Mainframe#	Open#	Name	Status	Volume Type	Encryption	Capacity (MB)	TPP
No.	No.	No.	No.	No.	No.	No.	No.	No.
-	0x0100	vol0100	Available	TPV	Yes	85536	0x01 pool_01	
-	0x0101	vol0101	Available	TPV	Yes	85536	0x01 pool_01	
-	0x0102	vol0102	Available	TPV	Yes	85536	0x01 pool_01	
-	0x0103	vol0103	Available	TPV	Yes	131072	0x01 pool_01	
-	0x0104	vol0104	Available	TPV	Yes	85536	0x01 pool_01	
-	0x0105	vol0105	Available	TPV	Yes	85536	0x02 pool_02	
-	0x0106	vol0106	Available	TPV	Yes	85536	0x02 pool_02	
-	0x0107	vol0107	Available	TPV	Yes	85536	0x02 pool_02	
-	0x0108	vol0108	Available	TPV	Yes	85536	0x02 pool_02	
-	0x0109	vol0109	Available	TPV	Yes	85536	0x02 pool_02	
							Free : 1072365568 (MB)	

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→ When the [Thin Provisioning Volume Expansion (Updating Configuration Information)] screen appears and the operation completes successfully, the [Thin Provisioning Volume Expansion (Result)] screen appears.

4 Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 5.3.12 Balance Thin Provisioning Volume

This function relocates the physical allocating area of the Thin Provisioning Volume (TPV) to make the physical area of TPV is allocated equally among the RAID Groups that configure the Thin Provisioning Pool (TPP).

When multiple TPVs in the same TPP are accessed, the physical area is allocated by using the RAID Groups of the TPP one by one in the access order. Therefore the physical area of TPVs may be unequally allocated among the RAID Groups. This phenomenon also occurs when expanding the capacity of a TPP. In this case, the physical area is allocated unevenly among the newly added and existing RAID Groups. The [Balance Thin Provisioning Volume] function is to solve the unequal allocation among RAID Groups, and balance the physical allocating area in each RAID Group. IO load is dispersed among the RAID Groups in the TPP and access performance may be improved.

■ Conditions for a TPV to be Balanced

- The volume type is [TPV]
- The [Status] is [Available]
- The TPV capacity is 8.0TB (8,388,608MB) or less
- RAID Migration is not being performed (the target volume is not specified as a migration source or migration destination for the existing RAID Migration)
- An Advanced Copy is not being performed (the target volume is not specified as a copy source or copy destination for the existing Advanced Copy)
- A Remote Advanced Copy is not being performed (the target volume is not specified as a copy source or copy destination for the existing Remote Advanced Copy)
- Balancing of a TPV is not being performed

- The total capacity of the selected TPV to be performed Balance Thin Provisioning Volume, the capacity of the TPVs being performed Balance Thin Provisioning Volume, and the capacity of volumes being performed RAID Migration, does not exceed 8.0TB (8,388,608MB)

■ Conditions for a TPP where the Target TPV has been Registered

- The [Status] is [Available]
- Free space in the TPP is larger than the capacity of the TPV to be balanced

**Caution** 

- In addition to ["Conditions for a TPV to be Balanced" \(page 284\)](#) and ["Conditions for a TPP where the Target TPV has been Registered" \(page 285\)](#), the following conditions are also required for balancing a TPV.

Depending on the status of the ETERNUS DX400/DX8000 series, a message appears. Click the [OK] button to return to the [Menu] screen.

- The total number of active TPV balancings and RAID Migrations must be 31 or less
- The maximum number of volumes are not set in the ETERNUS DX400/DX8000 series
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, work volumes can be allocated to the Resource Domain in which the balancing target TPV belongs (\*1)
- This function balances the physical allocating area of the TPV among RAID Groups of the TPP where the TPV belongs to. It is not able to balance TPV by migrating the TPV to other TPPs.
- In order to recover normal status (the status before failure), the configuration information of the ETERNUS DX400/DX8000 series may be needed. After balancing of all the TPVs have completed, use the [Export Configuration] function to get the configuration information.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the TPVs that can be balanced differ depending on the current user account.
  - When logged on using a Total Administrator account, all the TPVs that are assigned to Resource Domains can be balanced.
  - When logged on using a Resource Domain Administrator account, only the TPVs that are assigned to the relevant Resource Domain and Shared Resource can be balanced.
- The following operations cannot be performed when balancing a TPV:
  - Formatting a TPP where the TPV that is being balanced belongs (\*2)
  - Formatting a TPV that is being balanced(\*2)
  - Deleting a TPV that is being balanced
  - RAID Migration of a TPV that is being balanced
  - Balancing of a TPV that is being balanced
  - Expanding the capacity of a TPV that is being balanced
  - Setting Advanced Copy sessions to a TPV that is being balanced
  - Setting Remote Advanced Copy sessions to a TPV that is being balanced
  - Changing the Resource Domain of a TPP where the TPV that is being balanced belongs

- Preventive maintenance of the disks configuring a TPP where the TPV that is being balanced belongs
  - Changing the controlling CM-CPU of the RAID Groups registered in the TPP where the TPV that is being balanced belongs
  - Reducing the Advanced Copy table size
  - Setting Configuration (Restore mode)
  - Concurrent firmware loading
  - CM hot expansion
- \*1: When Resource Domains are registered in the ETERNUS DX400/DX8000 series, and if the sufficient number of Assignable Resources for Logical Volumes does not exist in the Resource Domain in which the balancing target TPV belongs, balancing of a TPV cannot be performed. The number of Logical Volumes that have been assigned to the relevant Resource Domain and the number of Assignable Resources can be checked using the [Resource Domain List] function.
- \*2: If any of the operations described above are executed, an error occurs and the balancing of a TPV is stopped.



Note

The progress of a balancing TPV can be checked with the [Progress of Balance Thin Provisioning Volume] function.

This section explains balancing Thin Provisioning Volume setting procedures.

## Procedure

- 1 Click [Balance Thin Provisioning Volume] under the Thin Provisioning Management in the [Configuration] menu.
  - The [Balance Thin Provisioning Volume (Initial)] screen appears.  
The initial screen displays the data download screen for each copy session.
  - When the data download is complete, the [Balance Thin Provisioning Volume (Select Balancing TPV)] screen appears.  
Refer to "[A.17.1 Balance Thin Provisioning Volume \(Select Balancing TPV\) Screen](#)" ([page 739](#)) for screen details.



Caution

When the balancing of a TPV cannot be executed, a message to that effect is displayed. Click the [OK] button to return to the [Menu] screen.

**2** Select the TPV to be balanced, and click the [Set] button.

Select a Thin Provisioning Volume to perform Balance Thin Provisioning Volume

Thin Provisioning Volume List					TPP				Resource Domain	
No.	Name	Status	Balance Level	Capacity (MB)	No.	Name	No.	Name	No.	Name
0x0000	olunam0000	Available	High	8128	0x00	tppname0000	0x01	rscdoma01		
0x0001	olunam0001	Available	Middle	8129	0x01	tppname0001	0x07	rscdoma07		
0x0002	olunam0002	Available	Low	8130	0x02	tppname0002	0x01	rscdoma01		
0x0003	olunam0003	Available	-	8131	0x03	tppname0003	0x07	rscdoma07		
0x0004	olunam0004	Available	High	8132	0x04	tppname0004	0x01	rscdoma01		
0x0005	olunam0005	Available	Middle	8133	0x05	tppname0005	0x07	rscdoma07		
0x0006	olunam0006	Available	Low	8134	0x06	tppname0006	0x01	rscdoma01		
0x0007	olunam0007	Available	-	8135	0x07	tppname0007	0x07	rscdoma07		
0x0008	olunam0008	Available	Low	10240	0x08	tppname0008	0x01	rscdoma01		
0x0009	olunam0009	Available	Middle	8137	0x09	tppname0009	0x07	rscdoma07		

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Set Menu

(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ The [Balance Thin Provisioning Volume (Check)] screen appears.

**Caution**

- If there is not enough capacity for balancing the selected TPV in the TPP where the TPV belongs, a message to that effect is displayed. When balancing the target TPV, ensure that there is enough free space in the TPP and execute the [Balance Thin Provisioning Volume] function again. Free space in the TPP can be secured by expanding the TPP or using the migration of the TPV registered in the TPP.
- If the TPP where the selected TPV belongs is temporarily changed to alarm state (exceeding the "Caution" or "Warning" threshold) when balancing the relevant TPV, a message to that effect is displayed in the [Balance Thin Provisioning Volume (Check)] screen.
- If the [Set] button is clicked without selecting a TPV to be balanced, an error screen appears.

 Note

- Clicking the [TPV No.] link displays the physical allocating capacity of the relevant TPV for each RAID Group.



RAID Group No.	Name	Allocating Capacity (MB)
0-001	rname0001	1344
0-002	rname0002	1344
0-003	rname0003	1344
0-004	rname0004	5376

(This screen is displayed when logged on the ETERNUS DX400/ DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

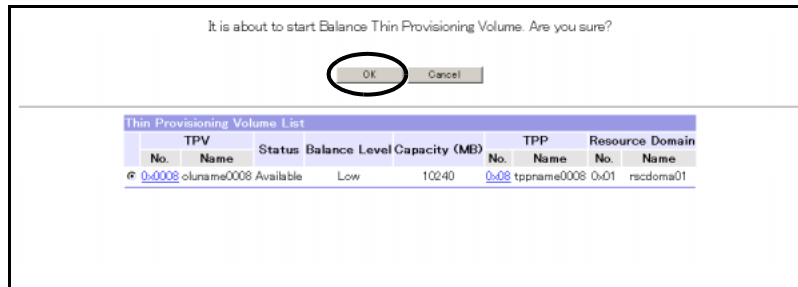
- Clicking the [TPP No.] link displays the Used Capacity (total of physical allocating capacity for all TPVs of the TPP) of the RAID Groups that configure the relevant TPP.



RAID Group No.	Name	Capacity (MB)	Used Capacity (MB)
0-001	rname0001	136704	1344
0-002	rname0002	136704	1344
0-003	rname0003	136704	1344
0-004	rname0004	136704	5376

(This screen is displayed when logged on the ETERNUS DX400/ DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

**3** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

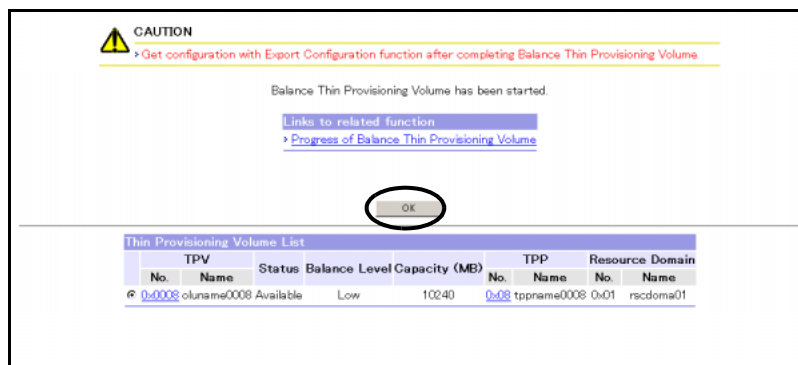
→ The [Balance Thin Provisioning Volume (Updating Configuration Information)] screen appears.

When the starting process for balancing a TPV is complete, the [Balance Thin Provisioning Volume (Result of Starting Balancing)] screen appears.

**Caution**

The TPP where the TPV that is being balanced belongs may be changed to alarm state (exceeding the "Caution" or "Warning" threshold) temporarily when the balancing is being executed.

**4** Click the [OK] button.



(This screen is displayed when logged on the ETERNUS DX400/DX8000 series in which the Resource Domains are registered using a Total Administrator account.)

→ Returns to the [Menu] screen.

**Caution** 

- After the balancing of a TPV is complete, this function deletes the working TPV and formats the working TPV. If the maximum capacity of volumes that can be formatted concurrently is exceeded when formatting starts, or the ETERNUS DX400/DX8000 series is in abnormal status, the deletion or formatting of working TPV fails, and a message to that effect is displayed. Wait until the current formatting process is complete, or correct the error in the device, and then delete the working TPV (temporary volume).
- The TPP where the TPV that is being balanced belongs may be changed to alarm state (exceeding "Caution" or "Warning" threshold) temporarily when the balancing is being executed.
- In order to recover normal status (the status before failure), the configuration information of the ETERNUS DX400/DX8000 series may be needed. After the balancing of a TPV has been completed, use the [Export Configuration] function to get the configuration information.



**Note**

Click the [Progress of Balance Thin Provisioning Volume] link to check a progress of balancing TPV.

**End of procedure**

### 5.3.13 Progress of Balance Thin Provisioning Volume

This screen displays the progress of a balancing TPV that has been specified using the [Balance Thin Provisioning Volume] function.

This function can be used to check the operating status of a balancing TPV. In addition, an unintended balancing TPV can be stopped using this function.

The operating status that is displayed in the "Balancing Thin Provisioning Volume Progress List" is shown below.

Operating status of the balancing TPV		Whether the balancing TPV is displayed or not in the "Balancing Thin Provisioning Volume Progress List"	Required actions
Normal	In operation	Displayed in the list.	Unnecessary
	Complete	Not displayed in the list. (Deleted from the list after completion.)	Unnecessary
Errors detected		Displayed in the list.	Delete the work volume manually using this function.

**Caution**



- In order to recover normal status (the status before failure), the configuration information of the ETERNUS DX400/DX8000 series may be needed. After balancing of all the TPVs has been completed (\*1), use the [Export Configuration] function to get the configuration information.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed progress status of a balancing TPV differs depending on the current user account.
  - When logged on using a Total Administrator account, progress status for all the balancing TPVs that are assigned to Resource Domains are displayed.
  - When logged on using a Resource Domain Administrator account, only the progress status of balancing TPVs that are assigned to the relevant Resource Domain, and only the progress status of balancing TPVs that are assigned to the Shared Resource, are displayed.

\*1: This indicates that normal balancing of TPVs has been completed, and balancing TPV sessions that terminated due to error are deleted completely.



**Note**

- Use the [Balance Thin Provisioning Volume] function to balance TPVs.
- Up to 32 balancing TPVs including RAID Migration can be performed at the same time. Refer to the [Progress of RAID Migration] menu for progress status of RAID Migration.
- When the balancing of a TPV is stopped, the physical allocated state of the TPV is not changed from it was before balancing was performed.

This section explains how to display the progress of a balancing Thin Provisioning Volume.

The following operations/settings are available on this screen.

- [Checking the Progress of the Balancing TPV](#)  
Check the status and progress of the balancing TPV.
- [Stopping a Balancing TPV](#)  
Stop the selected balancing TPV and delete the work volume.

Procedures for each operation are described below.

### 5.3.13.1 Checking the Progress of the Balancing TPV

#### Procedure

- 1 Click [Progress of Balance Thin Provisioning Volume] under the Thin Provisioning Management in the [Configuration] menu.  
 → The [Progress of Balance Thin Provisioning Volume (Initial)] screen appears.

#### Caution

When the ETERNUS DX400/DX8000 series is busy (retrieving progress data) or no balancing of a TPV is in progress, a message to that effect is displayed without showing the initial screen.  
 When the status is busy, wait until processing is done. When the progress data is retrieved, the [Progress of Balance Thin Provisioning Volume (Initial)] screen appears.  
 When no balancing of TPV is in progress, click the [OK] button to return to the [Menu] screen.

- 2 Check the status and progress.  
 Clicking the [Refresh] button updates to the latest state.

**CAUTION**  
 >Get configuration with Export Configuration function after completing Balance Thin Provisioning Volume.

**Balancing Thin Provisioning Volume Progress List**

ID	Status	Error Code	Elapsed Time	Vol. to Balance No.	Balance Name	Work Vol.	Progress	Balance Level	Capacity (MB)	TPP No.	TPP Name
0	Active	0x00	533910	0x0060	oluname0060	0x0160	93%	Middle	393216	0x00	tppname0000
1	Active	0x00	486316	0x0061	oluname0061	0x0161	87%	Middle	393216	0x00	tppname0000
2	Active	0x00	427128	0x0062	oluname0062	0x0162	37%	Middle	796432	0x01	tppname0001
3	Active	0x00	355940	0x0063	oluname0063	0x0163	31%	Low	796432	0x01	tppname0001

#### Caution

When the balancing of a TPV has been completed and no balancing of a TPV is in progress, a message to that effect appears. Click the [OK] button to return to the [Menu] screen.

**Note**

- Clicking the [Vol. No. to Balance] link displays the physical allocating capacity of the relevant TPV when balancing is started for each RAID Group.

RAID Group No.	Name	Allocating Capacity (MB)
0x0C0	rluname00C0	61824
0x0C1	rluname00C1	61824
0x0C2	rluname00C2	61824
0x0C3	rluname00C3	28568

- Clicking the [Work Vol.] link displays the physical allocating capacity of the relevant TPV that is being balanced for each RAID Group.

RAID Group No.	Name	Allocating Capacity (MB)
0x0C0	rluname00C0	52416
0x0C1	rluname00C1	51072
0x0C2	rluname00C2	51072
0x0C3	rluname00C3	51072

- Clicking the [TPP No.] link displays the Used Capacity (total of physical allocating capacity for all TPVs of the TPP) of the RAID Groups that configure the relevant TPP.

RAID Group No.	Name	Capacity (MB)	Used Capacity (MB)
0x0C0	rluname00C0	560128	310464
0x0C1	rluname00C1	560128	306120
0x0C2	rluname00C2	840192	306120
0x0C3	rluname00C3	840192	147840

- 3 Click the [Menu] button.  
 → Returns to the [Menu] screen.

**Caution** 

In order to recover normal status (the status before failure), the configuration information of the ETERNUS DX400/DX8000 series may be needed. After balancing of all the TPVs have completed, use the [Export Configuration] function to export the configuration information.

End of procedure

### 5.3.13.2 Stopping a Balancing TPV

#### Procedure

- 1 Click [Progress of Balance Thin Provisioning Volume] under the Thin Provisioning Management in the [Configuration] menu.  
 → The [Progress of Balance Thin Provisioning Volume (Initial)] screen appears.

**Caution** 

When the ETERNUS DX400/DX8000 series is busy (retrieving progress data) or no balancing of a TPV is in progress, a message to that effect is displayed without showing the initial screen.  
 When the status is busy, wait until processing is done. When the progress data is retrieved, the [Progress of Balance Thin Provisioning Volume (Initial)] screen appears.  
 When no balancing of TPV is in progress, click the [OK] button to return to the [Menu] screen.

- 2 Select which balancing TPV session to delete, and click the [Delete] button.  
 The status of any balancing TPV can be selected as a target for deletion.

**CAUTION**  
 > Get configuration with Export Configuration function after completing Balance Thin Provisioning Volume.

Balancing Thin Provisioning Volume Progress List

ID	Status	Error Code	Elapsed Time	Vol. to Balance No.	Name	Work Vol.	Progress	Balance Level	Capacity (MB)	TPP No.	Name
0	Active	0x00	533910	0x0080	olumame0060	0x0160	93%	Middle	393216	0x00	tppname0000
1	Active	0x00	496316	0x0081	olumame0061	0x0161	87%	Middle	393216	0x00	tppname0000
2	Active	0x00	427128	0x0082	olumame0062	0x0162	37%	Middle	796432	0x01	tppname0001
3	Active	0x00	355940	0x0083	olumame0063	0x0163	31%	Low	796432	0x01	tppname0001

Buttons: Delete Refresh Menu

→ The [Progress of Balance Thin Provisioning Volume (Deletion Check)] screen appears.

**Caution** 

When the [Delete] button is clicked without selecting a balancing TPV session to delete, an error screen appears.

**Note**

- Clicking the [Vol. No. to Balance] link displays the physical allocating capacity of the relevant TPV when balancing is started for each RAID Group.

RAID Group No.	Name	Allocating Capacity (MB)
0x0C0	rluname00C0	61824
0x0C1	rluname00C1	61824
0x0C2	rluname00C2	61824
0x0C3	rluname00C3	28568

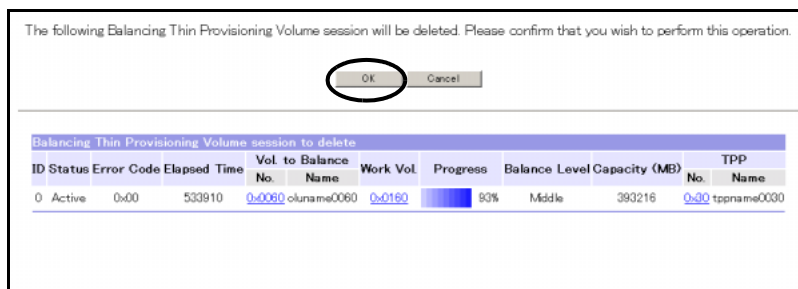
- Clicking the [Work Vol.] link displays the physical allocating capacity of the relevant TPV that is being balanced for each RAID Group.

RAID Group No.	Name	Allocating Capacity (MB)
0x0C0	rluname00C0	52416
0x0C1	rluname00C1	51072
0x0C2	rluname00C2	51072
0x0C3	rluname00C3	51072

- Clicking the [TPP No.] link displays the Used Capacity (total of physical allocating capacity for all TPVs of the TPP) of the RAID Groups that configure the relevant TPP.

RAID Group No.	Name	Capacity (MB)	Used Capacity (MB)
0x0C0	rluname00C0	560128	310484
0x0C1	rluname00C1	560128	308120
0x0C2	rluname00C2	840192	308120
0x0C3	rluname00C3	840192	147840

### 3 Click the [OK] button.



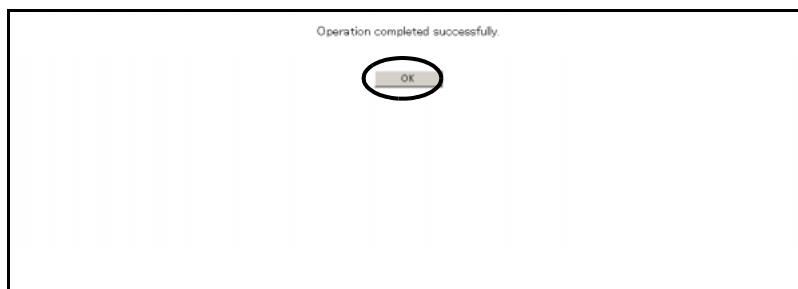
→ The [Progress of Balance Thin Provisioning Volume (Deleting TPV Balancing Session)] screen appears. After the process is successfully complete, the [Progress of Balance Thin Provisioning Volume (Deletion Result)] screen appears.

#### Caution



When the specified balancing TPV has already been completed, deletion cannot be executed. A message to that effect appears. Click the [OK] button to return to the [Progress of Balance Thin Provisioning Volume (Initial)] screen.

### 4 Click the [OK] button.



→ Returns to the [Progress of Balance Thin Provisioning Volume (Initial)] screen.

#### Caution



When the balancing TPV session has been deleted, or has been completed and no balancing of a TPV is in progress, a message to that effect appears. Click the [OK] button to return to the [Menu] screen.

### 5 Click the [Menu] button.

→ Returns to the [Menu] screen.

#### Caution



In order to recover normal status (the status before failure), the configuration information of the ETERNUS DX400/DX8000 series may be needed. After balancing of all the TPVs have completed, use the [Export Configuration] function to export the configuration information.

End of procedure

### 5.3.14 RAID Migration

---

This function migrates a volume in a RAID Group or Thin Provisioning Pool (TPP) to free space in another RAID Group or TPP. Refer to ["5.2.12 RAID Migration" \(page 214\)](#) for details.

### 5.3.15 Progress of RAID Migration

---

This function can be used to check the status of RAID Migration. Refer to ["5.2.13 Progress of RAID Migration" \(page 225\)](#) for details.

### 5.3.16 Delete Logical Volume

---

This function deletes the created volume(s) without stopping ETERNUS DX400/DX8000 series operations. Refer to ["5.2.15 Delete Logical Volume" \(page 236\)](#) for details.

### 5.3.17 Create Hot Spare

---

This function creates hot spare disks without stopping ETERNUS DX400/DX8000 series operations. Refer to ["5.2.16 Create Hot Spare" \(page 241\)](#) for details.

### 5.3.18 Delete Hot Spare

---

This function deletes registered hot spare disk(s) without stopping ETERNUS DX400/DX8000 series operations. Refer to ["5.2.17 Delete Hot Spare" \(page 243\)](#) for details.

### 5.3.19 Register Thin Provisioning License

The Thin Provisioning License can be registered in the ETERNUS DX400/DX8000 series. Thin Provisioning is an optional function offered for the ETERNUS DX400/DX8000 series. It is necessary to buy a license to use Thin Provisioning. By purchasing this license, the "License Label" can be obtained.

The license information on the label can be registered to the ETERNUS DX400/DX8000 series using the [Register Thin Provisioning License] function. When this registration is completed successfully, the customer can use the Thin Provisioning function.

**Caution** If the "Thin Provisioning License" is not registered, the Thin Provisioning function is not available.

This section describes how to register the Thin Provisioning License.

#### Procedure

- 1 Click [Register Thin Provisioning License] under the Thin Provisioning Management in the [Configuration] menu.  
→ The [Register Thin Provisioning License (Initial)] screen appears.

**Caution** When the license has already been registered, a message to that effect is displayed. Click the [OK] button to return to the [Menu] screen.

- 2 In order to register the Thin Provisioning License, set the following items and click the [Set] button.
  - MODEL  
Enter the MODEL (Model Name) of the license number.
  - SER No.  
Enter the SER No. (Serial Number) of the license number.
  - CC  
Enter the CC (Check Code) of the license number.

Input MODEL, SER No, and CC to register a license.

MODEL	: Exxxxxxx
SER. NO.	: 1
CC	: AB

MODEL :

SER No. :

CC :

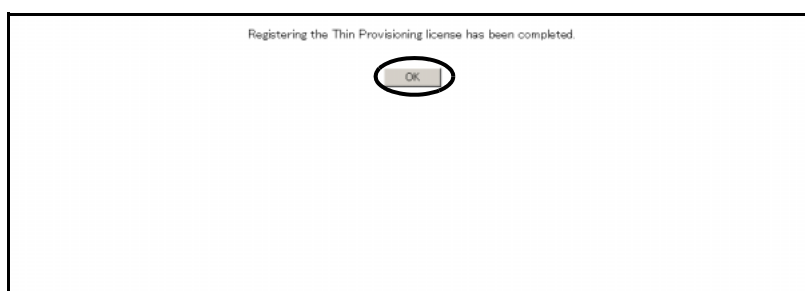
→ When the [Register Thin Provisioning License (Updating Configuration Information)] screen appears and the operation completes successfully, the [Register Thin Provisioning License (Setting Result)] screen appears.

---

**Caution**

- In the following conditions, an error screen appears.
    - When either [MODEL], [SER No.], or [CC] is not entered and the [Set] button is clicked
    - When entered value of [MODEL], [SER No.], and/or [CC] are out of range
    - When the license number is wrong
  - Contact your maintenance engineer if an error occurs when the information on the license display label is input correctly in the text box.
- 

**3** Click the [OK] button.



→ Returns to the [Menu] screen.

**End of procedure**

---

## 5.4 Host Interface Management

---

Under the Host Interface Management, CAs are setup.  
The following can be set up on this screen.

- Set CA Parameters
- Set Host World Wide Name(s)
- Set iSCSI Host
- Set Affinity Group
- Allocate Host-Affinity Group
- Set LUN Mapping
- Set CA Reset Group
- Set Host Response
- Set LCU
- Set IOA Mapping
- Change RA Mode
- Release Reservation

### 5.4.1 Set CA Parameters

---

This function sets the connection information between CA (Channel Adapter) and hosts without stopping the ETERNUS DX400/DX8000 series operations. The setting contents of a CA can be copied to another CA if both are the same type of CA. The following types of CA are used.

■ CA type

CA	Description
FC	<p>FC stands for Fibre Channel.</p> <p>FC type CAs use Fibre Channel (FC) with a maximum transfer speed of 4Gbit/s to transfer data.</p> <p>FC can be used as an FC-CA, FC-RA, or RFCF-RA for each port. The default is FC-CA for all ports. To change RA Mode of FC-CA, FC-RA, and RFCF-RA, use the [Change RA Mode] function.</p> <p>FC-CA is used to connect open system hosts and mainframe hosts.</p> <p>FC-RA is used to perform Remote Advanced Copy.</p> <p>RFCF-RA is used to perform Remote File Copy Facility-Expand (RFCF-EX).</p> <p>Detailed information must be set for each FC Port.</p> <p>When 4Gbit/s and 8Gbit/s FC are described separately in this manual, "FC4G" indicates 4Gbit/s FC. Otherwise, "FC" indicates both 4Gbit/s and 8Gbit/s FC.</p>
FC8G	<p>FC8G stands for 8Gbit/s Fibre Channel.</p> <p>FC8G type CAs use Fibre Channel (FC) with a maximum transfer speed of 8Gbit/s to transfer data.</p> <p>FC8G can be used as an FC-CA or FC-RA for each port, and cannot be used as an RFCF-RA. The default is FC8G-CA for all ports. To change RA Mode of FC8G-CA and FC8G-RA, use the [Change RA Mode] function.</p> <p>FC8G-CA is used to connect open system hosts.</p> <p>FC8G-RA is used to perform Remote Advanced Copy.</p> <p>Detailed information must be set for each FC8G Port.</p> <p>When 4Gbit/s and 8Gbit/s FC are described separately in this manual, "FC8G" indicates 8Gbit/s FC. Otherwise, "FC" indicates both 4Gbit/s and 8Gbit/s FC.</p>
OCLINK	<p>OCLINK stands for Optical Channel LINK.</p> <p>OCLINK is a CA (Channel Adapter) that uses Optical Channel Links to transfer data. OCLINK is used to connect to mainframe hosts.</p> <p>Detailed information must be set for each OCLINK Port.</p>
FCLINK	<p>FCLINK stands for Fibre Channel LINK.</p> <p>FCLINK is a CA (Channel Adapter) module that uses Fibre Channel (FC) to transfer data. FCLINK is used to connect to mainframe hosts. FCLINK is a CA that will take over from OCLINK.</p> <p>Detailed information must be set for each FCLINK Port.</p>
iSCSI-CA	<p>iSCSI-CA stands for Internet Small Computer System Interface - Channel Adapter.</p> <p>iSCSI-CA is a CA (Channel Adapter) module that uses TCP/IP to transfer data.</p> <p>iSCSI-CA is used to connect to open system servers.</p> <p>Detailed information must be set for each iSCSI-CA port.</p>
iSCSI-RA	<p>iSCSI-RA stands for Internet Small Computer System Interface - Remote Adapter.</p> <p>iSCSI-RA is a RA (Remote Adapter) module that uses TCP/IP to transfer data.</p> <p>iSCSI-RA is used for Remote Advanced Copy.</p> <p>Detailed information must be set for each iSCSI-RA port.</p>

**Caution**



- To change the detailed information of a CA during operation, make sure to disconnect access from all hosts connected to the CA or the CA Port whose setting will be changed. To change the detailed information of a newly added CA, it is not necessary to stop the host access.
- When copying CA-host connection information to an active CA, make sure to stop host access to the copy destination CA Port. When copying CA-host connection information to a newly added CA, it is not necessary to stop host access.



**Note**

If the CA type is FC, the settings can be copied between the ports with same RA mode (FC-CA/FC-RA/RFCF-RA). However, settings cannot be copied between FC4G and FC8G. Change the RA mode using the [Change RA Mode] menu.

The following explains [Set CA Parameters] procedures.

The following operations can be performed in the [Set CA Parameters].

- [Set Connection Information of a Connection between the CA and the Host](#)
- [Copy the Connection Information](#)

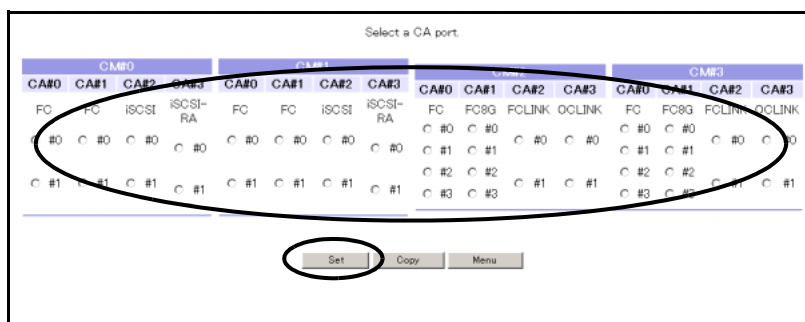
These procedures are explained in the following sections.

### 5.4.1.1 Set Connection Information of a Connection between the CA and the Host

This section explains the procedures for how to set the connection information of a CA and host.

#### Procedure

- 1 Click [Set CA Parameters] under the Host Interface Management in the [Configuration] menu.  
 → The [Set CA Parameters (Initial)] screen appears.
- 2 Select the CA Port to set the connection information between the CA and the host, and click the [Set] button.



The displayed screens vary depending on the type of CA selected.

- For FC

The displayed screen varies depending on the RA Mode of the FC Port.

- For CA

→ The [Set CA Parameters (FC-CA Detailed Settings)] screen appears.

Refer to ["A.18.1 Set CA Parameters \(FC-CA Detailed Settings\) Screen" \(page 741\)](#) for screen details.

CM00 CA#0 Port#0(FC-CA)  
Connection Topology ☐ Fabric Connection ☒ FC-AL Connection  
Loop-ID (Manual) 0x00 Loop-ID (Auto) Ascending  
FC Frame Size 2048 bytes  
Transfer Rate 4G/2G/1Gbps Auto  
Affinity Mode ☒ OFF ☐ ON ☐ I\_T\_L ☐ T\_L  
Reset Scope ☐ I\_T\_L ☐ T\_L ☐ OFF  
Reserve Cancel at Chip Reset ☒ OFF ☐ ON  
Host Response Default [Host Response List](#)  
Set Return

- For RA

→ The [Set CA Parameters (FC-RA Detailed Settings)] screen appears.

Refer to ["A.18.2 Set CA Parameters \(FC-RA Detailed Settings\) Screen" \(page 744\)](#) for screen details.

CM02 CA#0 Port#2(FC-RA)  
Connection Topology ☐ Fabric Connection ☒ FC-AL Connection  
Loop-ID (Manual) 0x00 Loop-ID (Auto) Ascending  
Transfer Rate 4G/2G/1Gbps Auto  
Set Return

- For RFCF-RA

→ The [Set CA Parameters (RFCF-RA Detailed Settings)] screen appears.

Refer to ["A.18.3 Set CA Parameters \(RFCF-RA Detailed Settings\) Screen" \(page 745\)](#) for screen details.

CM00 CA#1 Port#0(RFCF-RA)  
Connection Topology ☐ Fabric Connection ☒ FC-AL Connection  
Loop-ID (Manual) 0x00 Loop-ID (Auto) Ascending  
Transfer Rate 4G/2G/1Gbps Auto  
Set Return

- For OCLINK  
 → The [Set CA Parameters (OCLINK Detailed Setting)] screen appears.  
 Refer to "[A.18.4 Set CA Parameters \(OCLINK Detailed Settings\) Screen](#)" (page 747) for screen details.

- For FCLINK  
 → The [Set CA Parameters (FCLINK Detailed Setting)] screen appears.  
 Refer to "[A.18.5 Set CA Parameters \(FCLINK Detailed Settings\) Screen](#)" (page 747) for screen details.

- For iSCSI-CA  
 → The [Set CA Parameters (iSCSI-CA Detailed Setting)] screen appears.  
 Refer to "[A.18.6 Set CA Parameters \(iSCSI-CA Detailed Settings\) Screen](#)" (page 748) for screen details.

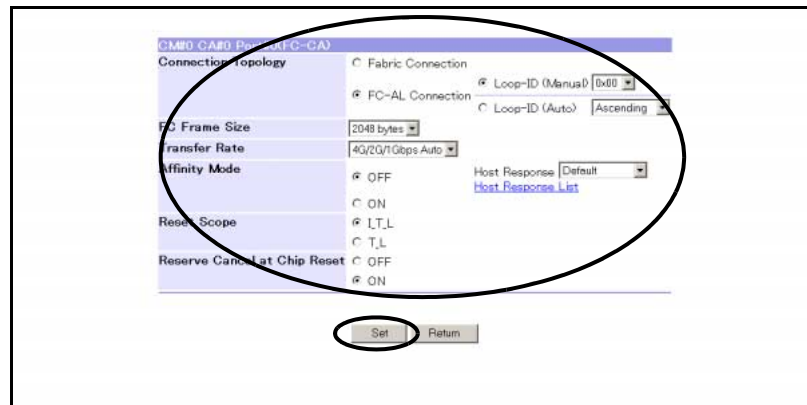
- | CM#0 CA#3 Port#0(FCSI-RA) |  |
|---------------------------|--|
| TCP/IP Setting            | IP Address <input type="text" value="192"/> <input type="text" value="168"/> <input type="text" value="1"/> <input type="text" value="97"/> <a href="#">Ping</a>                                     |
|                           | Subnet Mask <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/>  |
|                           | Gateway <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>  |
|                           | iSNS Server <input checked="" type="radio"/> OFF<br><input type="radio"/> ON <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> |
|                           |  |
| iSCSI Settings            | iSCSI Name <input type="text" value="iqn.2000-09.com.fujitsu:storage-system.e8000m9-00009001-7000"/>   |
|                           | Alias Name <input type="text" value=""/>   |
| Transfer Rate             | <input type="text" value="1Gbps Full duplex/Halt duplex auto-setting"/> ▼  |
| Bandwidth Limit           | <input type="text" value="600"/> Mbps (10 - 400)   |
| MTU Size                  | <input type="text" value="1300 bytes"/> ▼  |
| CHAP                      | <input checked="" type="radio"/> OFF   |
|                           | <input type="radio"/> ON   |
|                           | <input type="checkbox"/> Change  |
|                           | Current Password <input type="text" value=""/>   |
|                           | User Name <input type="text" value=""/>  |
|                           | New Password <input type="text" value=""/>   |
|                           | New Password (Re-enter) <input type="text" value=""/>  |
| Header Digest             | <input checked="" type="radio"/> OFF<br><input type="radio"/> CRC32C   |
| Data Digest               | <input checked="" type="radio"/> OFF<br><input type="radio"/> CRC32C   |
- Set Return



### 3 Select and set the setting items on each screen.

- (1)**Select the following items and click the [Set] button.

- Connection Topology  
Select a connection topology for the FC-CA Port.  
Select either Fabric Connection or FC-AL Connection.  
When [FC-AL Connection] is selected, it is necessary to assign a Loop-ID to the FC-CA Port.
- FC Frame Size  
Select a FC frame size for the FC-CA Port from the list box.
- Transfer Rate  
Select a transfer rate for the FC-CA Port from the list box.
- Affinity Mode  
Select ON (Enabled) or OFF (Disabled) for the Host-Affinity function of the FC-CA Port.  
When OFF (Disabled) is selected for [Affinity Mode], it is necessary to assign a Host Response to the FC-CA Port.
- Reset Scope  
Select the Reset Scope for the FC-CA Port from [I\_T\_L] or [T\_L].
- Reserve Cancel at Chip Reset  
Select ON (Enabled) or OFF (Disabled) for the Reserve Cancel setting for the FC-CA Port Chip Reset.



→ The [Set CA Parameters (FC-CA Detailed Setting Check)] screen appears.

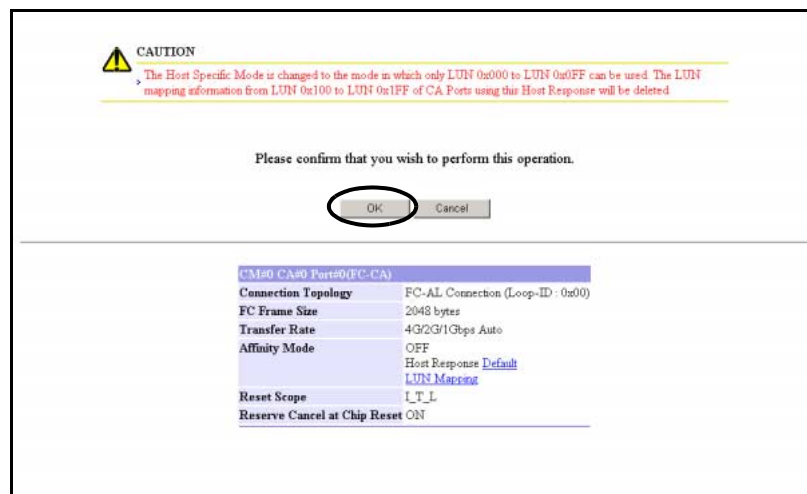
**Caution**

Reboot PRIMEPOWER and SPARC Enterprise servers immediately if the Loop-ID is changed while the server is running. If the PRIMEPOWER or SPARC Enterprise not rebooted, warning messages or system crashes may occur.

**Note**

- By clicking the [Host Response List] link in the [Affinity Mode], the Host Response List can be checked.
- By clicking the [Host Response No.] link on the [Set CA Parameters (Host Response List)] screen, the settings of the selected Host Response will be displayed.
- Details of the sense code conversion can be checked from the [Detail] button of the Sense Code Conversion Pattern.

(2)Click the [OK] button.



→ The [Set CA Parameters (Updating Configuration Information)] screen appears. When the process is successfully completed, the [Set CA Parameters (FC-CA Detailed Settings Result)] screen appears.

**Caution** 

When the Affinity Mode is [OFF], and the Host Response that can use up to 512 LUNs (0x000 – 0x1FF) (\*1) is changed to the Host Response that can only use up to 256 LUNs (0x000 – 0x0FF) (\*2), the LUN mappings allocated for FC-CA Port (0x100 – 0x1FF) is deleted.

\*1: Indicates the following Host Specific Modes:

AIX Mode (Extended Address), HP-UX Mode (SCC), or Linux/NR1000V Mode (Extended Address)

\*2: Indicates the following Host Specific Modes:

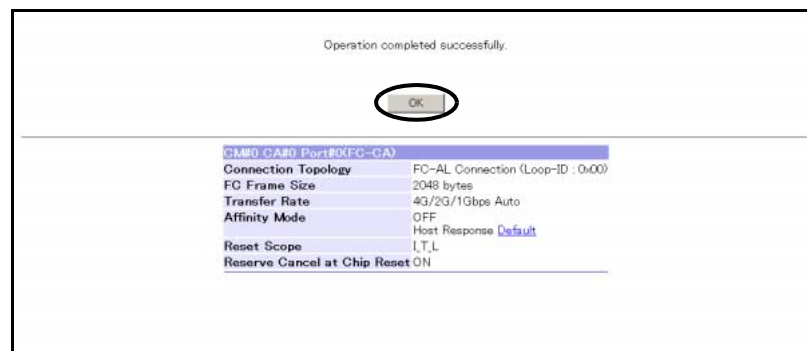
Normal Mode (Default) or AIX Mode

For the FC-CA Ports where LUN mapping will be deleted, the [LUN Mapping] link is displayed in the [Affinity Mode] field. Clicking the link displays the LUN mapping. LUN mapping to be deleted (0x100 – 0x1FF) is displayed with a yellow background.

 **Note**

When the Affinity Mode is OFF, the selected Host Response is displayed in the [Affinity Mode] field. Clicking the link enables you to check the details of the Host Response.

(3) Click the [OK] button.

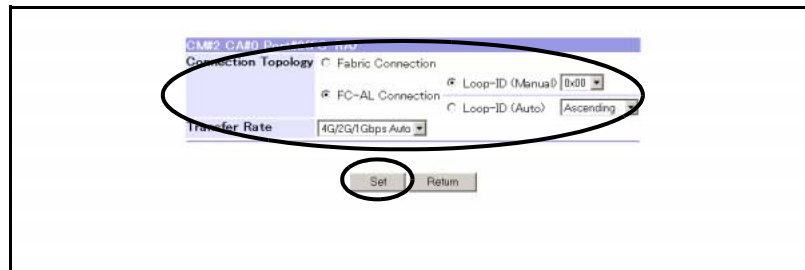


→ Returns to the [Set CA Parameters (Initial)] screen.

■ For FC-RA detailed settings

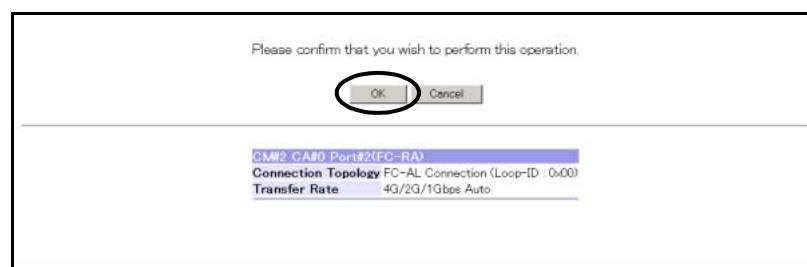
(1) Select the following items and click the [Set] button.

- Connection Topology  
Select a connection topology for the FC-CA Port.  
Select either Fabric Connection or FC-AL Connection.  
When [FC-AL Connection] is selected, it is necessary to assign a Loop-ID to the FC-CA Port.
- Transfer Rate  
Select a transfer rate for the FC-RA Port from the list box.



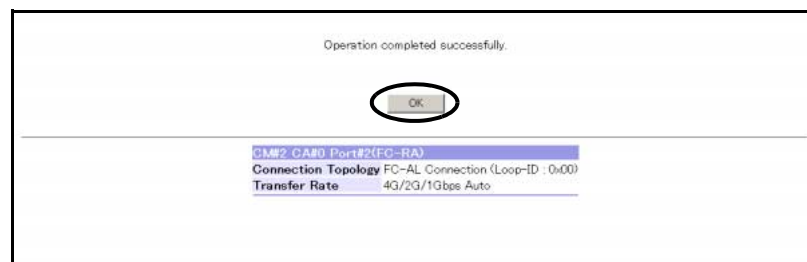
→ The [Set CA Parameters (FC-RA Detailed Setting Check)] screen appears.

(2) Click the [OK] button.



→ The [Set CA Parameters (Updating Configuration Information)] screen appears.  
When the process is successfully completed, the [Set CA Parameters (FC-RA Detailed Settings Result)] screen appears.

(3) Click the [OK] button.



→ Returns to the [Set CA Parameters (Initial)] screen.

■ For RFCF-RA detailed settings

**Caution**



RFCF-EX uses the ports in pairs. The pair port of the selected port is automatically specified with the same settings. "Pair port" indicates Port#0 and Port#1, or Port#2 and Port#3.

(1) Select the following items and click the [Set] button.

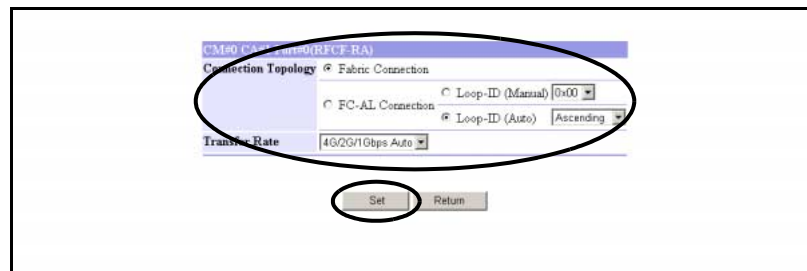
- Connection Topology  
Select a connection topology for the RFCF-RA Port.  
Select Fabric Connection.

**Caution**



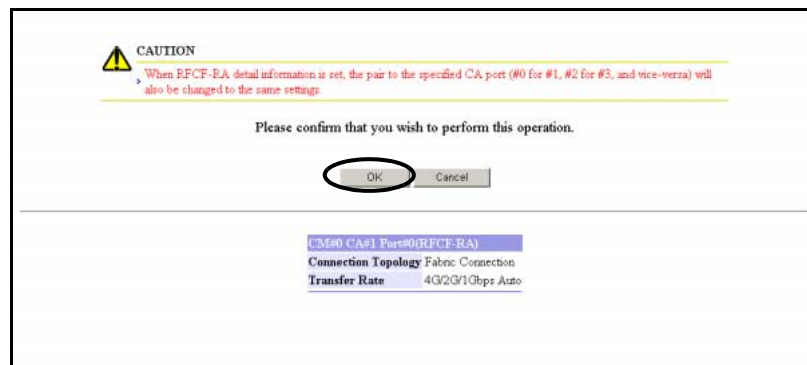
Be sure to specify [Fabric connection] for the Connection Topology. The RFCF-RA port does not support the [FC-AL connection].

- Transfer Rate  
Select a transfer rate for the RFCF-RA Port from the list box.



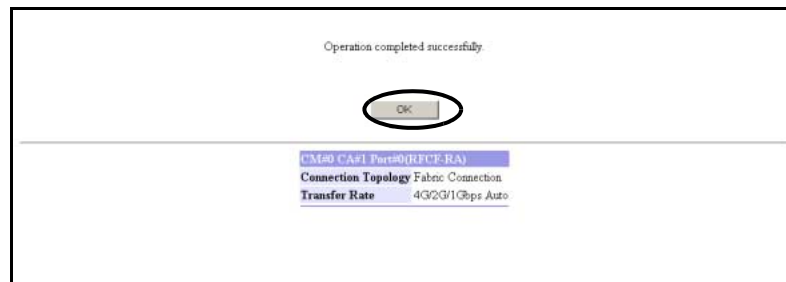
→ The [Set CA Parameters (RFCF-RA Detailed Setting Check)] screen appears.

(2) Click the [OK] button.



→ The [Set CA Parameters (Updating Configuration Information)] screen appears.  
When the process is successfully completed, the [Set CA Parameters (RFCF-RA Detailed Settings Result)] screen appears.

(3) Click the [OK] button.



→ Returns to the [Set CA Parameters (Initial)] screen.

■ For OCLINK detailed settings

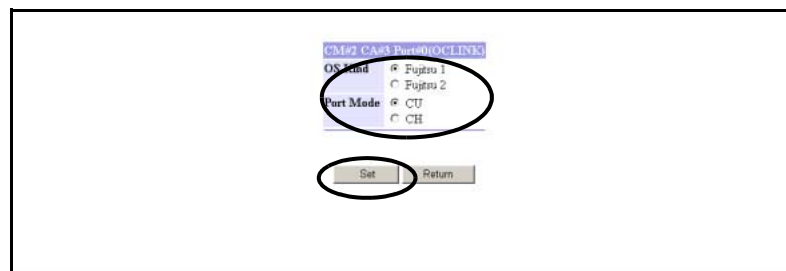
(1) Select the following item and click the [Set] button.

- OS Kind
  - Fujitsu 1  
The destination host runs on a Fujitsu OS.  
This is used when the OS can recognize and control the Logical Control Unit (LCU).
  - Fujitsu 2  
The destination host runs on a Fujitsu OS.  
This is used when the OS cannot recognize and control the Logical Control Unit (LCU).



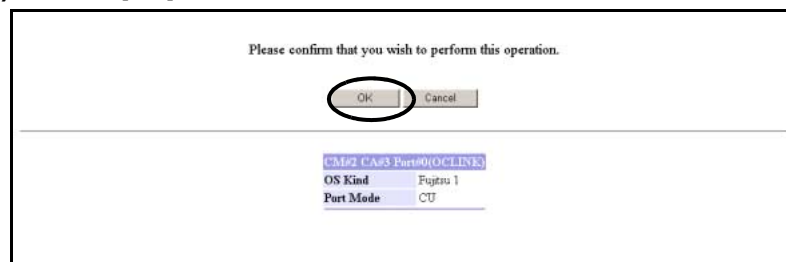
**Caution** If the OS Kind is changed, mapping information is deleted.

- Port Mode  
Select the desired port mode for the OCLINK Port.  
Note that the [CH] type port mode is not supported and cannot be selected.



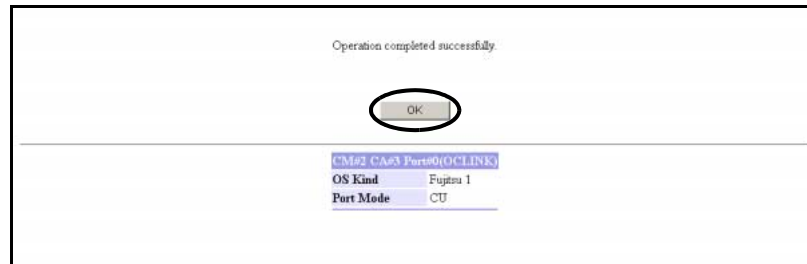
→ The [Set CA Parameters (OCLINK Detailed Settings Check)] screen appears.

(2) Click the [OK] button.



→ The [Set CA Parameters (Updating Configuration Information)] screen appears.  
When the process is successfully completed, the [Set CA Parameters (OCLINK Detailed Settings Result)] screen appears.

(3) Click the [OK] button.

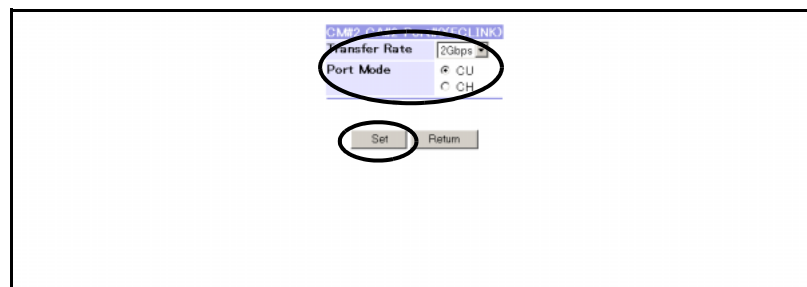


→ Returns to the [Set CA Parameters (Initial)] screen.

■ For FCLINK detailed settings

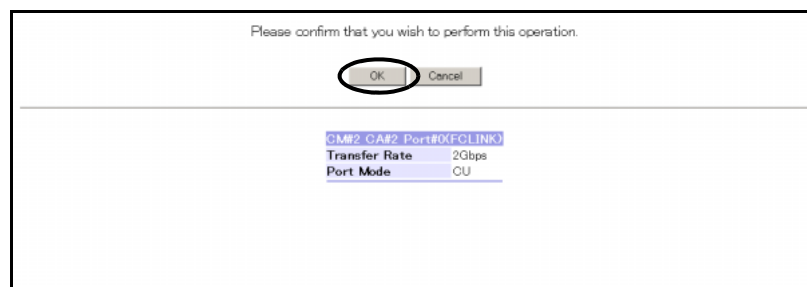
(1) Select the following items and click the [Set] button.

- Transfer Rate
  - 1Gbit/s  
Sets the transfer rate to 1Gbit/s.  
This is used when connecting GS and FCLINK directly.
  - 2Gbit/s  
Sets the transfer rate to 2Gbit/s.  
This is used when connecting GS and FCLINK via FCLINK switch.
- Port Mode  
Select a port mode for FCLINK Port.  
Note that "CH" port is not supported and cannot be selected.



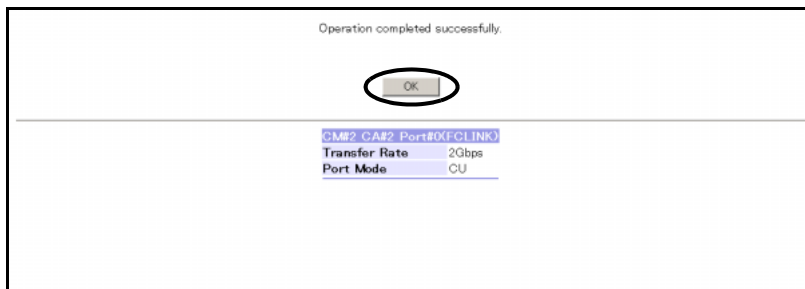
→ The [Set CA Parameters (FCLINK Detailed Settings Check)] screen appears.

(2) Click the [OK] button.



→ The [Set CA Parameters (Updating Configuration Information)] screen appears.  
When the process is successfully completed, the [Set CA Parameters (FCLINK Detailed Settings Result)] screen appears.

**(3)** Click the [OK] button.



→ Returns to the [Set CA Parameters (Initial)] screen.

- For iSCSI-CA detailed settings

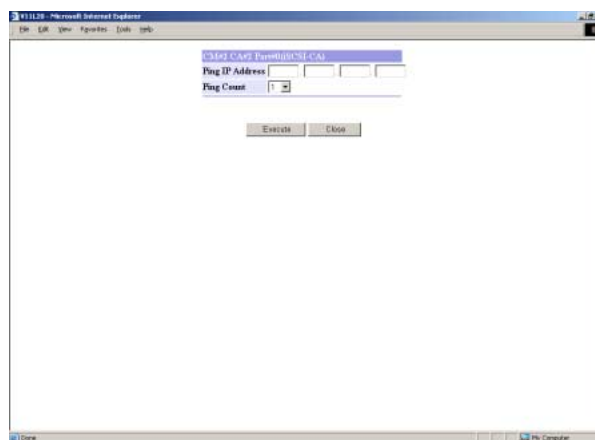
**(1)** Select the following items and click the [Set] button.

[TCP/IP Setting]

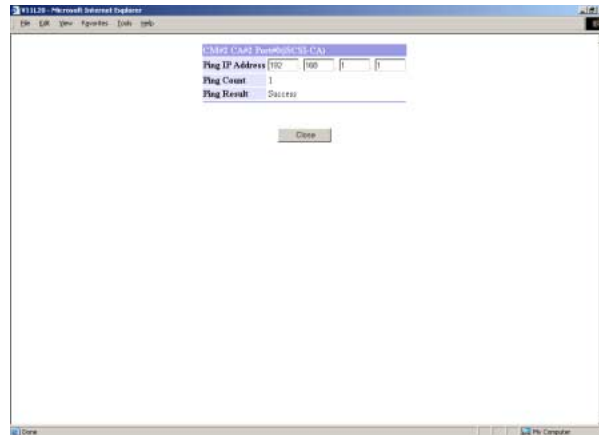
- IP Address (required)  
Specify the IP Address of the iSCSI-CA Port.
- Subnet Mask (required)  
Specify the subnet mask of the iSCSI-CA Port.
- Gateway  
Specify the gateway of the iSCSI-CA Port.
- iSNS Server  
Specify ON (Enabled) or OFF (Disabled) for the iSCSI-CA Port iSNS server.  
When ON (Enabled) is selected, it is necessary to set the IP address of the iSCSI-CA Port iSNS server.



- Clicking the [ping] link of the [IP Address] field enables you to check if the IP Address is assigned properly or if the connection path to the destination device is operating normally. After entering the destination device IP Address for which you wish to check the connection status in [Ping IP Address] and specifying the number of "Ping" commands to execute in [Ping Count], click the [Execute] button ([Set CA Parameters (Ping Setting)] screen).



- When the Execution Result screen appears, check the results ([Set CA Parameters (Ping Execution Result)] screen).



---

#### [iSCSI Settings]

- iSCSI Name (required)  
Specify the iSCSI Name of the iSCSI-CA Port.  
When setting the default iSCSI Name, click the [Default] button.
- Alias Name  
Specify the Alias Name of the iSCSI-CA Port.

#### [Transfer Rate]

Set the transfer rate of the iSCSI-CA Port.

- 1Gbit/s  
The transfer rate is 1Gbit/s (full-duplex).

#### [CHAP]

Select ON (Enabled) or OFF (Disabled) for the CHAP of the iSCSI-CA Port.

- ON  
Enables the CHAP  
Enter the user name for the CHAP and the current password.  
To change the password, enter a new password.
- OFF  
Disables the CHAP



#### Caution

When setting the user name and/or the password, check the "Change" checkbox.

---

#### [Affinity Mode]

Select ON (Enabled) or OFF (Disabled) for the Host-Affinity function of the iSCSI-CA Port.

- ON  
Enables the Host-Affinity function of the iSCSI-CA Port.  
In this case, [Set LUN Mapping] is disabled and the Host-Affinity function is enabled for the iSCSI-CA Port.
- OFF  
Disables the Host-Affinity function of the iSCSI-CA Port.  
In this case, [Set LUN Mapping] is enabled and the Host-Affinity function is disabled for the iSCSI-CA Port.



Note

- By clicking the [Host Response List] link of the [Affinity Mode], the Host Response List can be checked.
- By clicking the [Host Response No.] link on the [Set CA Parameters (Host Response List)] screen, the settings of the selected Host Response will be displayed.
- Details of the sense code conversion can be checked from the [Detail] button of the Sense Code Conversion Pattern.

[Reset Scope]

Select the Reset Scope for the iSCSI-CA Port from [I\_T\_L] or [T\_L].

[Reserve Cancel at Chip Reset]

Select ON (Enabled) or OFF (Disabled) for the Reserve Cancel setting of the iSCSI-CA Port Chip Reset.

[CmdSN Count]

Select the number of commands that can be accepted from the host at the same time for the iSCSI-CA port. It is not necessary to change this default setting (Unlimited) for normal use.

[Header Digest]

Select the Header Digest for the iSCSI-CA Port from [OFF] or [CRC32C].

[Data Digest]

Select the Data Digest for the iSCSI-CA Port from [OFF] or [CRC32C].

→ The [Set CA Parameters (iSCSI-CA Detailed Settings Check)] screen appears.

**Caution** 

When clicking the [Set] button in the following conditions, an error screen appears.

- When the required setting items (IP Address, Subnet Mask, iSCSI Name) are not set.
- When characters other than the numbers (0 to 255) are entered in the IP Address, Subnet Mask, or Gateway.
- When a value exceeding the maximum value is set in the IP Address or Gateway.
- When "255.255.255.255" is entered in the IP Address, Subnet Mask, or Gateway.
- When the IP Address is the same as the network address.
- When the IP Address is the same as the broadcast address.
- When the Gateway has been set, and the IP Address and the Gateway address are the same.
- When the Gateway has been set, and the IP Address and the Gateway are not in the same subnet.
- When the iSCSI Name contains characters other than alphanumeric characters and symbols ":", "-", and ".".
- When the same Alias Name is registered to two or more iSCSI-CA Ports.
- When the CHAP is ON, and the User Name is 256 characters or longer.
- When the CHAP is ON, and the User Name includes characters other than 0x20 – 0x7E of ACSII code (alphanumeric characters and symbols).
- When the CHAP is ON, and the Current Password is different from the data in the device information.
- When the CHAP is ON, and the New Password and/or New Password (Re-enter) include characters other than 0x20 – 0x7E of ASCII code (alphanumeric characters and symbols).
- When the CHAP is ON, and the New Password and the New Password (Re-enter) are 11 characters or shorter, or 101 characters or longer.
- When the CHAP is ON, and the New Password and the New Password (Re-enter) are not the same.

(2) Click the [OK] button.

Please confirm that you wish to perform this operation.

OK Cancel

CM#2 CA#2 Port#0(iSCSI-CA)

TCP/IP Setting

IP Address: 192 168 0 69

Subnet Mask: 255 255 255 0

Gateway:

iSNS Server: OFF

iSCSI Settings

iSCSI Name: qm2009-09.com.fujitsu.storage-system.s8000m9.00009001

Alias Name:

Transfer Rate: 1Gbps

CHAP: OFF

Affinity Mode: OFF

Host Response: [Default](#)

Reset Scope: I.T.L

Reserve Cancel at Chip Reset: OFF

CmdSN Count: Default

Header Digest: OFF

Data Digest: OFF

→ The [Set CA Parameters (Updating Configuration Information)] screen appears.  
When the process is successfully completed, the [Set CA Parameters (iSCSI-CA Detailed Settings Result)] screen appears.

**Caution**

When the Affinity Mode is [OFF], and the Host Response that can use up to 512 LUNs (0x000 – 0x1FF) (\*1) is changed to the Host Response that can only use up to 256 LUNs (0x000 – 0x0FF) (\*2), the LUN mappings allocated for iSCSI-CA Port (0x100 – 0x1FF) is deleted.

\*1: Indicates the following Host Specific Modes:

AIX Mode (Extended Address), HP-UX Mode (SCC), or Linux/NR1000V Mode (Extended Address)

\*2: Indicates the following Host Specific Modes:

Normal Mode (Default) or AIX Mode

For the iSCSI-CA Ports where LUN mapping will be deleted, the [LUN Mapping] link is displayed in the [Affinity Mode] field. Clicking the link displays the LUN mapping. LUN mappings to be deleted (0x100 – 0x1FF) is displayed with a yellow background.

**Note**

When the Affinity Mode is [OFF], the selected Host Response is displayed in the [Affinity Mode] field. Clicking the link enables you to check the details of the Host Response.

(3) Click the [OK] button.

Operation completed successfully.

OK

CM#2	CA#2	Port#0	iSCSI-CA		
<b>TCP/IP Setting</b>					
IP Address		192	168	0	89
Subnet Mask		255	255	255	0
Gateway					
iSNS Server		<input checked="" type="radio"/> OFF <input type="radio"/> ON			
iSCSI Name		iqn.2000-09.com.fujitsu.storage-system.e8000m9.00009001			
Alias Name					
Transfer Rate		1Gbps			
CHAP		OFF			
Affinity Mode		OFF			
Host Response		Default			
Reset Scope		I,T,L			
Reserve Cancel at Chip Reset		OFF			
CmdSN Count		Default			
Header Digest		OFF			
Data Digest		OFF			

→ Returns to the [Set CA Parameters (Initial)] screen.

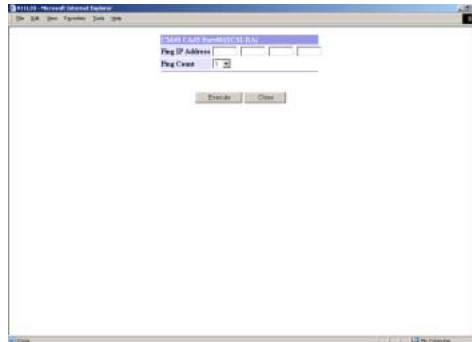
■ For iSCSI-RA detailed settings

(1) Select the following items and click the [Set] button.  
[TCP/IP Setting]

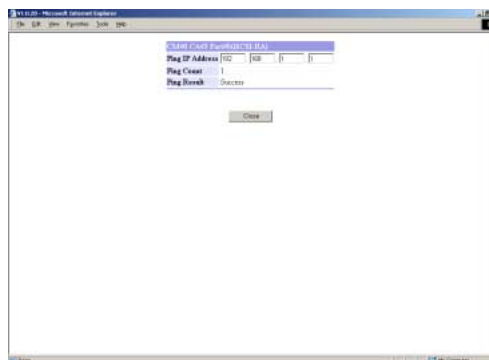
- IP Address (required)  
Specify the IP Address of the iSCSI-RA Port.
- Subnet Mask (required)  
Specify the subnet mask of the iSCSI-RA Port.
- Gateway  
Specify the gateway of the iSCSI-RA Port.
- iSNS Server  
Specify ON (Enabled) or OFF (Disabled) for the iSCSI-RA Port iSNS server.  
When ON (Enabled) is selected, it is necessary to set the IP address of the iSCSI-RA Port iSNS server.

 Note

- Clicking the [ping] link of the [IP Address] field enables you to check if the IP Address is assigned properly or if the connection path to the destination device is operating normally. After entering the destination device IP Address for which you wish to check the connection status in [Ping IP Address] and specifying the number of "Ping" commands to execute in [Ping Count], click the [Execute] button ([Set CA Parameters (Ping Setting)] screen).



- When the Execution Result screen appears, check the results ([Set CA Parameters (Ping Execution Result)] screen).



[iSCSI Setting]

- iSCSI Name  
The iSCSI Name of the iSCSI-RA Port is displayed.
- Alias Name  
Specify the Alias Name of the iSCSI-RA Port.

[Transfer Rate]

Set the transfer rate of the iSCSI-RA Port.

- Auto-negotiation
- 1Gbit/s Full duplex/Half duplex auto-setting
- 1Gbit/s Full duplex
- 100Mbit/s Full duplex/Half duplex auto-setting
- 100Mbit/s Full duplex

[Bandwidth Limit]

Set the bandwidth limit (between 10Mbit/s and 400Mbit/s) of the iSCSI-RA Port.



Only set a bandwidth limit (as appropriate) if the line being used requires one.

[MTU size]

Set the MTU size for the iSCSI-RA Port.

- 1000bytes/1050bytes/1100bytes/1150bytes/1200bytes/1250bytes/1300bytes/1350bytes/1400bytes/1438bytes

[CHAP]

Select ON (Enabled) or OFF (Disabled) for the CHAP of the iSCSI-RA Port.

- ON  
Enables the CHAP.  
Enter the user name for the CHAP and the current password.  
To change the password, enter a new password.
- OFF  
Disables the CHAP.



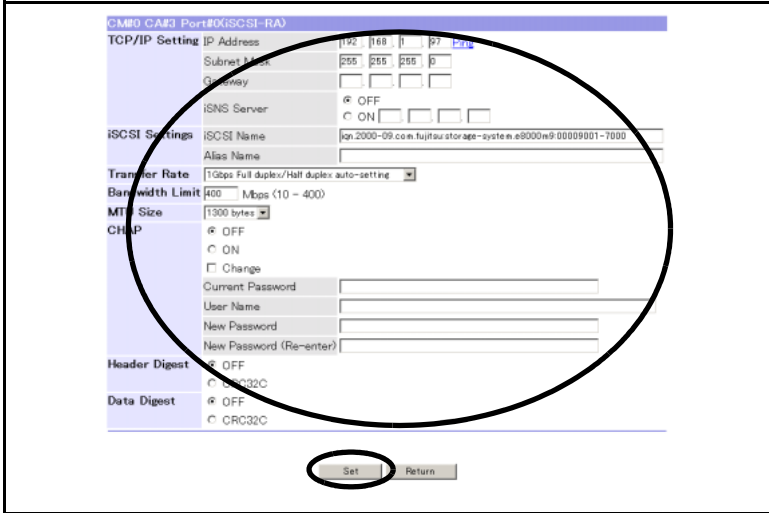
When setting the user name and/or the password, check the "Change" checkbox.

[Header Digest]

Select the Header Digest for the iSCSI-RA Port from [OFF] or [CRC32C].

[Data Digest]

Select the Data Digest for the iSCSI-RA Port from [OFF] or [CRC32C].



→ The [Set CA Parameters (iSCSI-RA Detailed Settings Check)] screen appears.

**Caution** 

When clicking the [Set] button in the following conditions, an error screen appears.

- When the required setting items (IP Address or Subnet Mask) are not set.
- When characters other than the numbers (0 to 255) are entered in the IP Address, Subnet Mask, or Gateway.
- When a value exceeding the maximum value is set in the IP Address or Gateway.
- When "255.255.255.255" is entered in the IP Address, Subnet Mask, or Gateway.
- When the IP Address is the same as the network address.
- When the IP Address is the same as the broadcast address.
- When the Gateway has been set, and the IP Address and the Gateway address are the same.
- When the Gateway has been set, and the IP Address and the Gateway are not in the same subnet.
- When the same Alias Name is registered to two or more iSCSI-RA Ports.
- When the CHAP is ON, and the User Name is 64 characters or longer.
- When the CHAP is ON, and the User Name includes characters other than 0x20 – 0x7E of ACSII code (alphanumeric characters and symbols).
- When the CHAP is ON, and the Current Password is different from the data in the device information.
- When the CHAP is ON, and the New Password and/or New Password (Re-enter) include characters other than 0x20 – 0x7E of ASCII code (alphanumeric characters and symbols).
- When the CHAP is ON, and the New Password and the New Password (Re-enter) are 11 characters or shorter, or 33 characters or longer.
- When the CHAP is ON, and the New Password and the New Password (Re-enter) are not the same.

(2) Click the [OK] button.

Please confirm that you wish to perform this operation.

OK Cancel

---

**CMF0 CA#3 Port#0(iSCSI-RA)**

<b>TCP/IP Setting</b>	
IP Address	192 168 1 97
Subnet Mask	255 255 255 0
Gateway	
iSNS Server	OFF
	ON
<b>iSCSI Settings</b>	
iSCSI Name	qn.2000-09.com.fujitsu.storage-system.e8000m9.00009001-7000
Alias Name	
Transfer Rate	1Gbps Full duplex/Half duplex auto-setting
Bandwidth Limit	400Mbps
MTU Size	1300 bytes
CHAP	OFF
Header Digest	CRC32C
Data Digest	CRC32C

→ The [Set CA Parameters (Updating Configuration Information)] screen appears.  
 When the process is successfully completed, the [Set CA Parameters (iSCSI-RA Detailed Settings Result)] screen appears.

(3) Click the [OK] button.

Operation completed successfully.

OK

---

**CMF0 CA#3 Port#0(iSCSI-RA)**

<b>TCP/IP Setting</b>	
IP Address	192 168 1 97
Subnet Mask	255 255 255 0
Gateway	
iSNS Server	OFF
	ON
<b>iSCSI Settings</b>	
iSCSI Name	qn.2000-09.com.fujitsu.storage-system.e8000m9.00009001-7000
Alias Name	
Transfer Rate	1Gbps Full duplex/Half duplex auto-setting
Bandwidth Limit	400Mbps
MTU Size	1300 bytes
CHAP	OFF
Header Digest	CRC32C
Data Digest	CRC32C

→ Returns to the [Set CA Parameters (Initial)] screen.

End of procedure

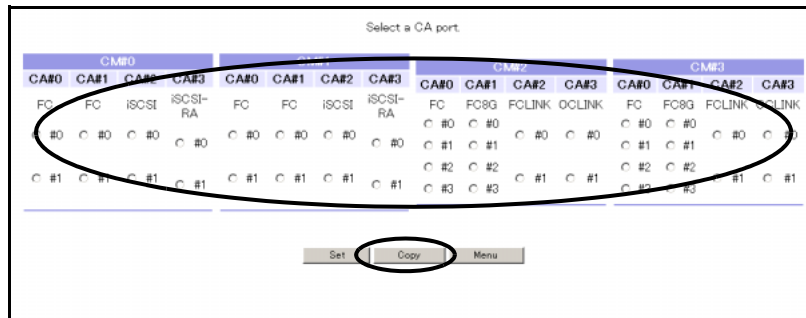
### 5.4.1.2 Copy the Connection Information

This section explains the procedures used to copy the connection information of the connection between the CA and the host to another CA.

#### Procedure

- 1 Click [Set CA Parameters] under the Host Interface Management in the [Configuration] menu.  
 → The [Set CA Parameters (Initial)] screen appears.

- 2 Select the copy source CA port of the CA-host connection information, and click the [Copy] button.



→ The [Set CA Parameters (Copy Destination CA Port Selection)] screen appears.

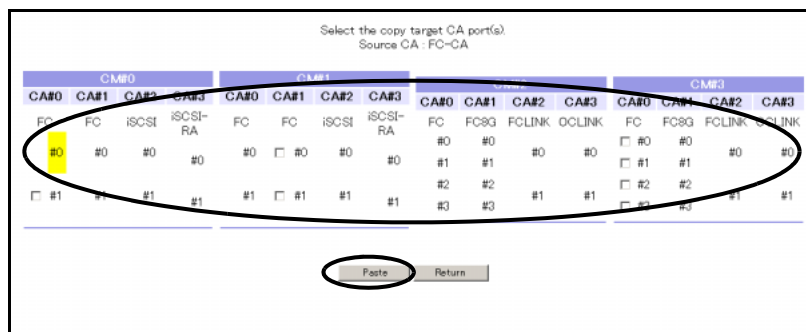
**Caution**



When the [Copy] button is clicked without selecting a copy source CA Port, an error screen appears.

- 3 Select copy destination CA Port(s) to which the selected CA Port connection information will be copied (multiple selections can be made), and click the [Paste] button.

The selected copy source CA Port is displayed with a yellow background.



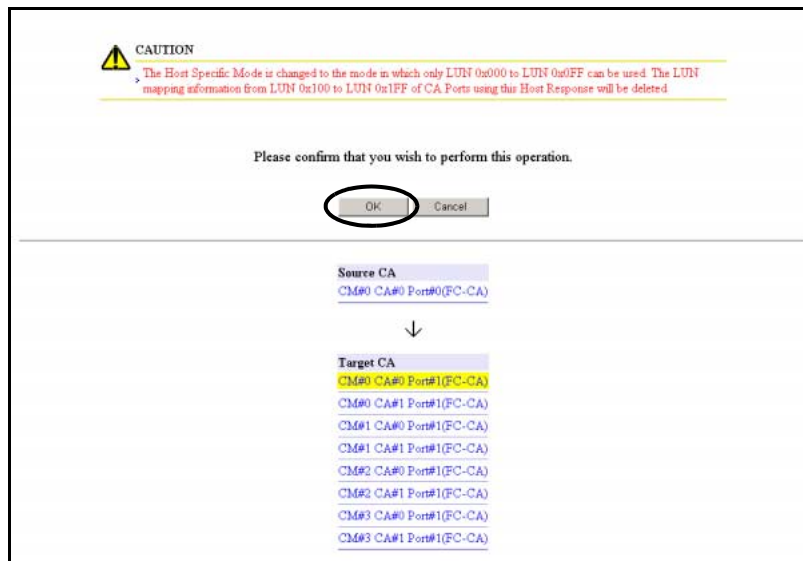
→ The [Set CA Parameters (Check Copying)] screen appears.

**Caution**



- If the CA type is FC, the settings can be copied only when the port has the same RA mode (FC-CA/FC-RA/RFCF-RA). However, settings cannot be copied between FC4G and FC8G.
- RFCF-EX uses the ports in pairs. The pair port of the selected port is automatically copied with the same settings. "Pair port" indicates Port#0 and Port#1, or Port#2 and Port#3.
- When the [Paste] button is clicked without selecting a copy destination CA Port, an error screen appears.

4 Click the [OK] button.



→ The [Set CA Parameters (Updating Configuration Information)] screen appears.  
When the process is successfully completed, the [Set CA Parameters (Copy Result)] screen appears.

**Caution**

- When the connection topology of the copy source CA Port is "FC-AL Connection Loop-ID (Manual)", the setting value of "Loop-ID" will not be copied. After the connection information has been copied, set the "Loop-ID" of the copy destination CA Port.
- When the copy source is "iSCSI-CA" Port, the "IP Address", "iSCSI Name", and "Alias Name" will not be copied. After the connection information has been copied, set the "IP Address", "iSCSI Name", and "Alias Name (if necessary)" of the copy destination CA Port.
- When the copy source is "iSCSI-RA" Port, the "IP Address", "iSCSI Name", and "Alias Name" will not be copied. After the connection information has been copied, set the "IP Address" and "Alias Name (if necessary)" of the copy destination CA Port.
- When the copy source is the "FC-CA" Port and the Affinity Mode is [OFF], the copy destination CA Port where registration information of LUN mapping will be changed is displayed with a yellow background. LUN mappings for the CA Ports with a yellow background (0x100 – 0x1FF) is deleted after copying the FC-CA Port.
- When the copy source is the "iSCSI-CA" Port and the Affinity Mode is [OFF], the copy destination CA Port where the registration information of LUN mapping will be changed is displayed with a yellow background. LUN mappings for the CA Ports with a yellow background (0x100 – 0x1FF) is deleted after copying the iSCSI-CA Port.
- If the OS Kind of the OCLINK is changed by copying, the mapping information will be deleted.



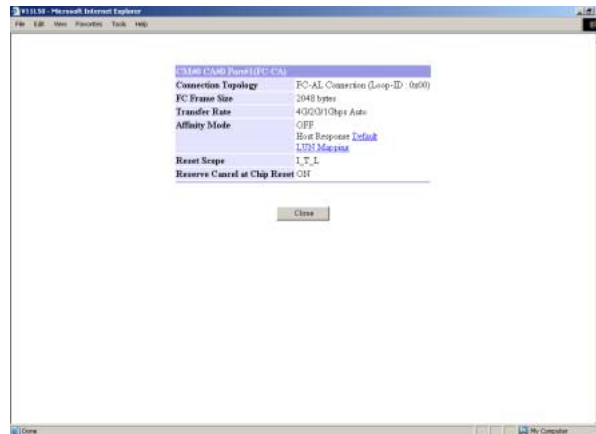
Note

Clicking the copy source CA Port link or copy destination CA Port link displays the CA Port detailed screen.

The displayed screens vary depending on the selected CA Port type.

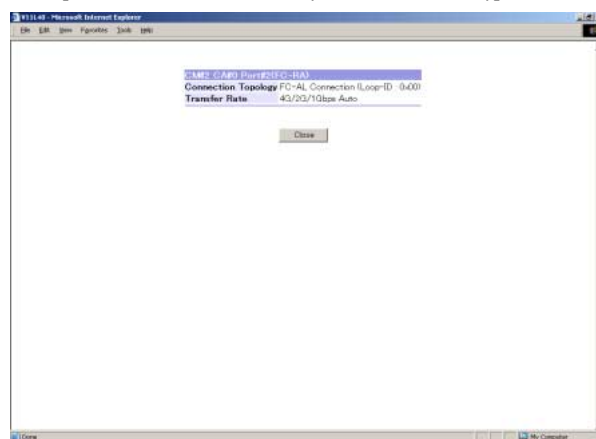
- For FC-CA

The [Set CA Parameters (FC-CA Details)] screen appears.



- For FC-RA

The [Set CA Parameters (FC-RA Details)] screen appears.



- For RFCF-RA

The [Set CA Parameters (RFCF-RA Details)] screen appears.

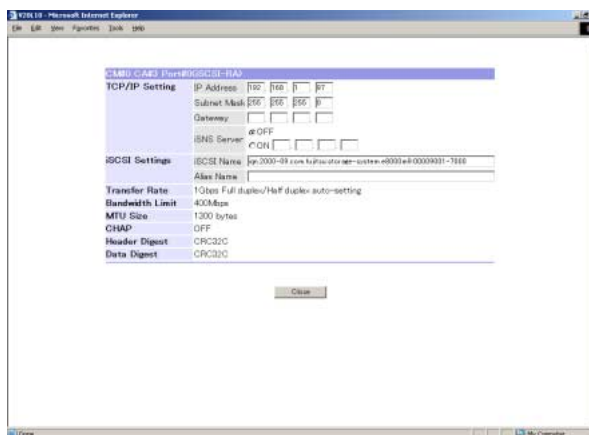


- 
- The screenshot shows the VMware Workstation interface. The title bar reads "P: VMware Workstation Internet Explorer". The menu bar includes "File", "Edit", "View", "Hardware", "Tools", and "Help". The main window displays a virtual machine named "SMB-Guest-Parent-01-100". Below the name, the "OS Kind" is listed as "Fujitsu 1". The "Part Mode" is set to "CT". A "Close" button is located at the bottom of the window.

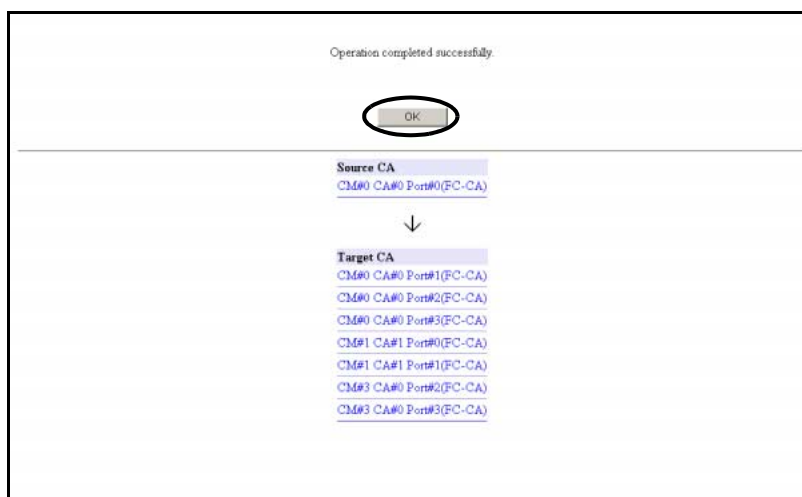
- 
- The screenshot shows a Windows XP desktop environment. In the foreground, a small dialog box titled "NEW GAME PORTFOLIO LINK" is open. It contains two lines of text: "Transfer Rate" followed by "20bps" and "Port Mode" followed by "CU". At the bottom of the dialog box is a "Close" button. In the background, a web browser window is visible with the title "V411129 - Polycom Internet Explorer". The browser's address bar shows "http://www.polycom.com/". The desktop background is a light blue gradient with a faint grid pattern. The taskbar at the bottom shows the "Start" button and several open applications, including "Internet Explorer", "My Computer", and "My Recent Places".

- 
- The screenshot shows a window titled "Vols 50 - Network Information". It contains two main sections: "TCP/IP Setting" and "iSCSI Settings".
- TCP/IP Setting:**
- IP Address: 192.168.0.75
  - Subnet Mask: 255.255.0.0
  - Gateway: (empty)
  - DNS Server: # OFF
  - CON: (empty)
- iSCSI Settings:**
- iSCSI Name: qn-2000-01.com.hihsa.storage-system.s1000.s01010001
  - Alias Name: (empty)
  - Transfer Rate: 1Gbps
  - CHAP: OFF
  - Affinity Mode: ON
  - Reset Scope: LTL
  - Reserve Cancel at Chip Reset: OFF
  - CmdSN Count: Default
  - Header Digest: OFF
  - Data Digest: OFF
- At the bottom of the window is a "Close" button.

- For iSCSI-RA  
The [Set CA Parameters (iSCSI-RA Details)] screen appears.



- 5** Click the [OK] button.



→ Returns to the [Set CA Parameters (Initial)] screen.

End of procedure

## 5.4.2 Set Host World Wide Name(s)

Host World Wide Name(s) (hereafter WWNs) should be set only when the host and the ETERNUS DX400/DX8000 series are connected via FC-CA.

If the WWNs of the host-side Fibre Channel cards are registered, the Host-Affinity function can use them to restrict which hosts are allowed to access which ETERNUS DX400/DX8000 series Logical Volumes.

This function adds/deletes WWNs without needing to stop ETERNUS DX400/DX8000 series.

When it is necessary to use non-default Host Response(s) from the ETERNUS DX400/DX8000 series to the host, a Host Response must be assigned to each WWN or each FC-CA Port. A target to which a Host Response is assigned varies depending on [ON/OFF] of the Host-Affinity function.

- When the Host-Affinity function is [ON (Enabled)]  
Set Host Response for each WWN using the [Set Host World Wide Name(s)] function.
- When the Host-Affinity function is [OFF (Disabled)]  
Set Host Response for each FC-CA Port using the [Set CA Parameters] function.

The maximum number of WWNs, Affinity Groups, and Host-Affinity Settings which can be registered vary depending on each model. The following shows the number which can be set for each model.

### ■ Number of WWNs/Affinity Groups/Host-Affinity Settings which can be registered

Model	Number of WWNs	Number of Affinity Groups (in the system)	Number of Host-Affinity Settings (per port)
ETERNUS DX410	256	256	64
ETERNUS DX440	256	256	64
ETERNUS DX8100	256	256	64
ETERNUS DX8400	1024	512	64
ETERNUS DX8700	1024	512	64

#### Caution



- When deleting a WWN during operation, stop access from the host corresponding to the WWN. To add a new WWN, it is not necessary to stop the host access.
- Host-Affinity Function can be used if the [Affinity Mode] of the target FC-CA Port is [ON (Enabled)].
- When deleting a Host Response using the [Set Host Response] function, the Host Response of each WWN related to it changes to the [Host Response No.: Default].
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the Resource Domains to which WWNs can be assigned differ depending on the current user account.
  - When logged on using a Total Administrator account, WWNs can be assigned to all Resource Domains.
  - When logged on using a Resource Domain Administrator account, WWNs can be assigned only to the relevant Resource Domain.

 Note

- When the host and the ETERNUS DX400/DX8000 series are connected via FC-CA, there are two methods to have the host recognize the Logical Volumes of the ETERNUS DX400/DX8000 series. One is [Set LUN Mapping], and the other is the Host-Affinity function, which requires [Set Host World Wide Name(s)], [Set Affinity Group], and [Allocate Host-Affinity Group]. The [Affinity Mode] of [Set CA Parameters] set in every FC-CA Port determines which function to use. If [Affinity Mode] is [ON (Enabled)], the Host-Affinity function is enabled, whereas [Set LUN Mapping] is enabled if [Affinity Mode] is [OFF (Disabled)].
- The Host-Affinity function is a device security function for open system servers which is supported by Fibre Channel CAs (FC-CA) and iSCSI-CAs. Not only [Set Host World Wide Name(s)] but also [Set Affinity Group] and [Allocate Host-Affinity Group] are required in order to use the Host-Affinity function with FC-CA.
- If appropriate Host Response is not registered in the ETERNUS DX400/DX8000 series, register a Host Response using the [Set Host Response] function.
- When a server-side FC card is changed, the WWN must also be changed. If the WWN is being used by the Host-Affinity function, first delete the link between the WWN and the Affinity Group via the [Allocate Host-Affinity Group] menu, then delete the old WWN and add the new WWN via the [Set Host World Wide Name(s)] menu. Finish by creating a link between the new WWN and the Affinity Group via the [Allocate Host-Affinity Group] menu.  
Host access must be stopped while the FC card is being changed.

The following explains Set Host World Wide Name(s) procedures.  
The following settings are available.

- [Add WWN](#)
- [Delete WWN](#)
- [Change Host Response](#)

Procedures for each operation are described below.

#### 5.4.2.1 Add WWN

This section explains procedures to add WWN.

##### Procedure

- 1 Click [Set Host World Wide Name(s)] under the Host Interface Management in the [Configuration] menu.  
→ The [Set Host World Wide Name(s) (Initial)] screen appears.  
Refer to "[A.19.1 Set Host World Wide Name\(s\) \(Initial\) Screen](#)" ([page 756](#)) for screen details.

## 2 Select a method to add WWN.

Select [Select] to select from the WWN list collected from the CA, or select [Manual Input] to enter a WWN directly.

**CAUTION**  
 > If the [Collect] button does not fill the WWN pulldown, Manual Input will be required

Host WWN List (Registered & Pending)			
No.	Name	World Wide Name	Host Response
<input type="checkbox"/>	000 host1_000	AAAAAAAAAAAAAB001	[Default]
<input type="checkbox"/>	001 host1_001	AAAAAAAAAAAAAB002	[Default]
<input type="checkbox"/>	002 host1_002	AAAAAAAAAAAAAB003	[Default]

3 Hosts - Page 1/1

**Add WWN**

Name:

☒ **Select** CA:

☐ **Manual Input** WWN:

Host Response: [Default]

## 3 Add WWN.

### ■ To add using [Select]

- (1) Input the Host Table name for the WWN to be added in the text box (can be omitted).
- (2) Select the FC-CA Port for which to collect a WWN from the list box.
- (3) Click the [Collect] button to collect the WWN.



Note

WWN can be collected either by [FC-AL Connection] or [Fabric Connection].

- (4) Select a WWN to be added from the list box.
  - (5) From the list box, select a Resource Domain to which the WWN to be added is assigned. (\*1)
  - (6) From the list box, select a Host Response that is added to the WWN to be added.
- \*1: The "Resource Domain" item is only displayed when Resource Domains are registered in the ETERNUS DX400/DX8000 series, and when logged on using a Total Administrator account.

**CAUTION**  
 > If the [Collect] button does not fill the WWN pulldown, Manual Input will be required.

Host WWN List (Registered & Pending)

No.	Name	World Wide Name	Host Response
<input type="checkbox"/> 000	host1_000	AAAAAAAAAAAAAB001	Default
<input type="checkbox"/> 001	host1_001	AAAAAAAAAAAAAB002	Default
<input type="checkbox"/> 002	host1_002	AAAAAAAAAAAAAB003	Default

3 Hosts - Page 1/1

Add WWN

Name:

☒ Select CA:   WWN:

☐ Manual Input WWN:

Host Response:

**Caution**

- When the [Collect] button is clicked without selecting CA, an error screen appears.
- In case WWNs are not shown in list box using [Collect] button, check the path between the host and the CA port as well the configuration setting such as CA port setting to insure that there are no problems. If there are no problems in the path and the WWN collection still fails, please report the condition to customer support or enter the WWN by manual entry.

■ To add using [Manual Input]

- (1) Input the Host Table name for the WWN to be added in the text box (can be omitted).
- (2) Directly input WWN, which can be connected to a CA, in the text box.
- (3) From the list box, select a Resource Domain to which the WWN to be added is assigned. (\*1)
- (4) From the list box, select a Host Response that is added to the WWN to be added.

\*1: The "Resource Domain" item is only displayed when Resource Domains are registered in the ETERNUS DX400/DX8000 series, and when logged on using a Total Administrator account.

**CAUTION**  
 > If the [Collect] button does not fill the WWN pulldown, Manual Input will be required.

Host WWN List (Registered & Pending)

No.	Name	World Wide Name	Host Response
<input type="checkbox"/> 000	host1_000	AAAAAAAAAAAAAB001	Default
<input type="checkbox"/> 001	host1_001	AAAAAAAAAAAAAB002	Default
<input type="checkbox"/> 002	host1_002	AAAAAAAAAAAAAB003	Default

3 Hosts - Page 1/1

Add WWN

Name:

☒ Select CA:   WWN:

☐ Manual Input WWN:

Host Response:

- 4 Click the [Add] button to add the WWN to the [Host WWN List (Registered & Pending)] on the [Set Host World Wide Name(s) (Initial)] screen.

CAUTION  
If the [Collect] button does not fill the WWN pulldown, Manual Input will be required.

Host WWN List (Registered & Pending)			
Host Table			Host Response
No.	Name	World Wide Name	
<input type="checkbox"/>	000	host1_000	AAAAAAAAAAB001 [Default]
<input type="checkbox"/>	001	host1_001	AAAAAAAAAAB002 [Default]
<input type="checkbox"/>	002	host1_002	AAAAAAAAAAB003 [Default]

3 Hosts - Page 1/1

Add WWN

Name: host1\_003

CA: [ ] Collect

WWN: [ ]

Manual Input WWN: AAAAAAAAAAAB004

Host Response: [Default]

Add Delete Set Menu

→ The [Set Host World Wide Name(s) (Initial)] screen appears as the selected WWN is added (Not updated in the ETERNUS DX400/DX8000 series yet).  
The selected WWN is displayed with a yellow background.  
Repeat Steps 2 to 4 to add more WWN(s).

**Caution**

- When the [Add] button is clicked in the following conditions, an error screen appears.
  - Without selecting a WWN to add using [Select]
  - Without entering a WWN to add using [Manual Input]
  - Characters other than 0-9, A-F, or a-f were entered in the WWN to add using [Manual Input]
  - More than or less than 16 digits were entered in the WWN to add using [Manual Input]
  - 0 was entered as the first character of the WWN to add using [Manual Input]
  - After all 0 or all F (f) were entered for the 16 digits in the WWN to add using [Manual Input]
  - After selecting an already registered WWN to add using [Select] or [Manual Input]
  - After characters other than ASCII code (0x20 – 0x7E) were entered in the Host Table name
  - After entering a Host Table name for an already registered Fibre Channel card
  - The selected Resource Domain differs from the Resource Domain of the Host Response (An error does not occur when either or both of the Resource Domains are the Shared Resource)
- The Host Table name cannot be changed after clicking the [Add] button. When changing the Host Table name, delete the relevant WWN, change the Host Table name, and register again.

- 5 Click the [Set] button to register the added WWN(s) in the ETERNUS DX400/DX8000 series.

**CAUTION**  
 > If the [Collect] button does not fill the WWN pulldown, Manual Input will be required

Host WWN List (Registered & Pending)				
Host Table			Host Response	
No.	Name	World Wide Name		
<input type="checkbox"/>	000	host1_000	AAAAAAAAAAAAAB001	Default
<input type="checkbox"/>	001	host1_001	AAAAAAAAAAAAAB002	Default
<input type="checkbox"/>	002	host1_002	AAAAAAAAAAAAAB003	Default
<input checked="" type="checkbox"/>	003	host1_003	AAAAAAAAAAAAAB004	Default

4 Hosts - Page 1/1

---

**Add WWN**

Name:

CA:  Collect

WWN:

Manual Input:

Host Response:

Add Delete **Set** Menu

→ The [Set Host World Wide Name(s) (Check Setting)] screen appears.



Note

- By clicking the [Host Response] link in the Add WWN, the Host Response List can be checked.
- By clicking the [Host Response No.] link on the [Set Host World Wide Name(s) (Host Response List)] screen, the settings of the selected Host Response will be displayed.
- Details of the sense code conversion can be checked from the [Detail] button on the [Set Host World Wide Name(s) (Host Response Details)] screen.

- 6 Click the [OK] button.

Please confirm that you wish to perform this operation.

OK Cancel

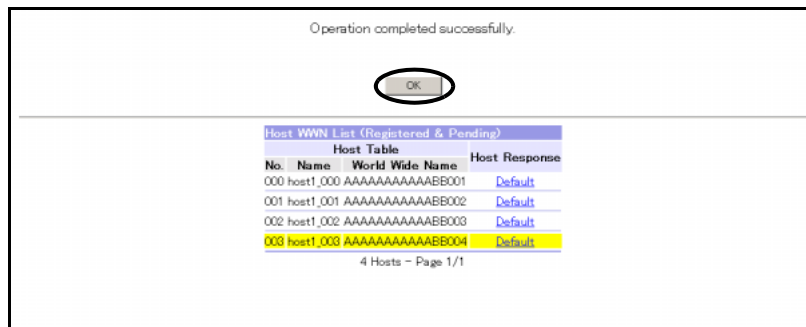
---

Host WWN List (Registered & Pending)			
Host Table			Host Response
No.	Name	World Wide Name	
000	host1_000	AAAAAAAAAAAAAB001	Default
001	host1_001	AAAAAAAAAAAAAB002	Default
002	host1_002	AAAAAAAAAAAAAB003	Default
003	host1_003	AAAAAAAAAAAAAB004	Default

4 Hosts - Page 1/1

→ Displays the [Set Host World Wide Name(s) (Updating Configuration Information)] screen. After the process is successfully completed, the [Set Host World Wide Name(s) (Setting Result)] screen appears.

**7** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 5.4.2.2 Delete WWN

This section explains procedures to delete WWN.

**Caution**



- When deleting a WWN during operation, stop access from the host corresponding to the WWN.
- Before deleting a WWN used for Host-Affinity, delete the Host-Affinity settings for that WWN from the [Allocate Host-Affinity Group] menu.

#### Procedure

- 1 Click [Set Host World Wide Name(s)] under the Host Interface Management in the [Configuration] menu.  
 → The [Set Host World Wide Name(s) (Initial)] screen appears.

- 2 Select the checkbox(es) for the WWN(s) to be deleted (multiple selections can be made), and click the [Delete] button.

**CAUTION**  
 > If the [Collect] button does not fill the WWN pulldown, Manual Input will be required

Host WWN List (Registered & Pending)			
Host Table			
No.	Name	World Wide Name	Host Response
<input type="checkbox"/> 000	host1_000	AAAAAAAAAAAAAB001	Default
<input type="checkbox"/> 001	host1_001	AAAAAAAAAAAAAB002	Default
<input type="checkbox"/> 002	host1_002	AAAAAAAAAAAAAB003	Default
<input type="checkbox"/> 003	host1_003	AAAAAAAAAAAAAB004	Default

4 Hosts - Page 1/1

**Add WWN**

Name:

CA:  Collect

WWN:

☒ Select ☐ Manual Input

Host Response:

Add **Delete** Set Menu

→ The [Set Host World Wide Name(s) (Check Deleting)] screen appears.

**Caution**



When the [Delete] button is clicked without selecting a checkbox, an error screen appears.

- 3 Click the [OK] button.

**CAUTION**  
 > Currently in-use WWNs are selected for deletion!

Please confirm that you wish to perform this operation.

**OK** Cancel

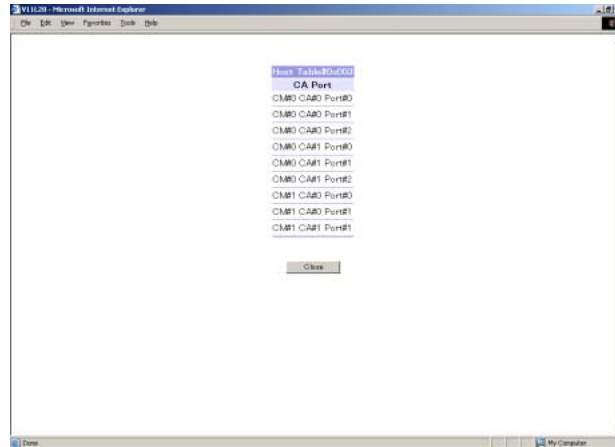
WWNs to be Deleted			
Host Table			
No.	Name	World Wide Name	Host Response
002	host1_002	AAAAAAAAAAAAAB003	Default
003	host1_003	AAAAAAAAAAAAAB004	Default

2 Hosts - Page 1/1

→ The [Set Host World Wide Name(s) (Initial)] screen appears, showing a list of the WWNs that are to be deleted. (Not updated in the ETERNUS DX400/DX8000 series yet)

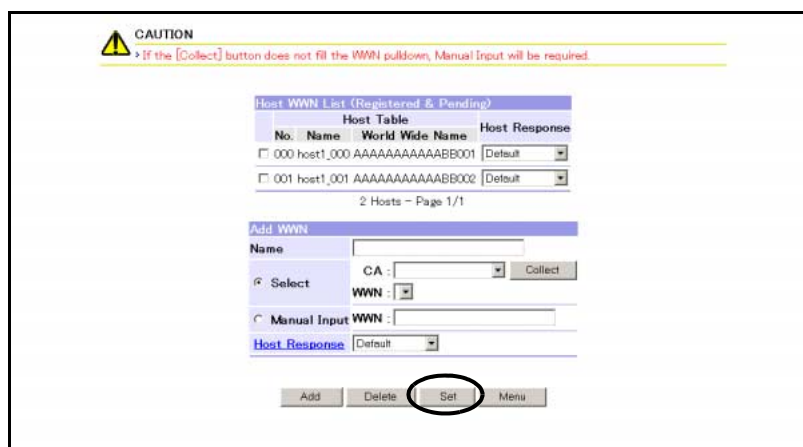
**Note**

- The WWN with Host-Affinity settings is displayed with a yellow background, and a link is displayed in the [Host Table#] field. Click the [Host Table#] link to check the list of CA ports that reference the target WWN ([Set Host World Wide Name(s) (CA Port List)] screen).



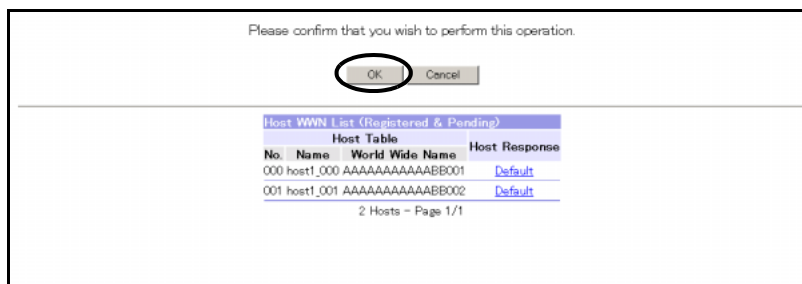
- By clicking the [Host Response] link, details of relevant Host Responses can be displayed ([Set Host World Wide Name(s) (Host Response Details)] screen).
- By clicking the [Host Response] link, details of relevant Host Responses can be displayed ([Set Host World Wide Name(s) (Host Response Details)] screen).
- By clicking the [Host Response No.] link on the [Set Host World Wide Name(s) (Host Response List)] screen, further information can be displayed ([Set Host World Wide Name(s) (Host Response Details)] screen).
- Details of the sense code conversion can be checked from the [Detail] button on the [Set Host World Wide Name(s) (Host Response Details)] screen ([Set Host World Wide Name(s) (Sense Code Details)] screen).

**4** Click the [Set] button to delete the selected WWNs.



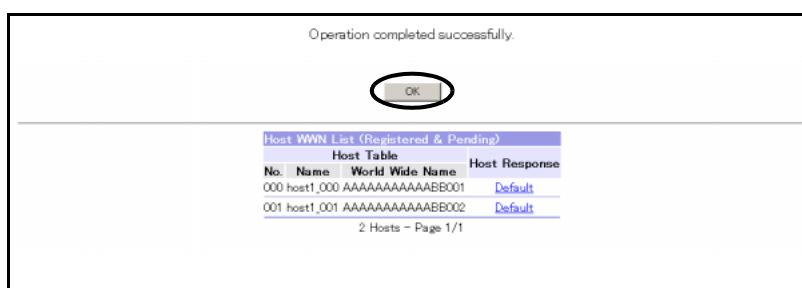
→ The [Set Host World Wide Name(s) (Check Setting)] screen appears.

**5** Click the [OK] button.



→ Displays the [Set Host World Wide Name(s) (Updating Configuration Information)] screen. After the process is successfully completed, the [Set Host World Wide Name(s) (Setting Result)] screen appears.

**6** Click the [OK] button.



→ Returns to the [Menu] screen.

**End of procedure**

### 5.4.2.3 Change Host Response

This section explains how to change the Host Response added to each registered WWN.

#### Procedure

- 1 Click [Set Host World Wide Name(s)] under the Host Interface Management in the [Configuration] menu.  
 → The [Set Host World Wide Name(s) (Initial)] screen appears.

**2** Select a Host Response from the list in one or more boxes.

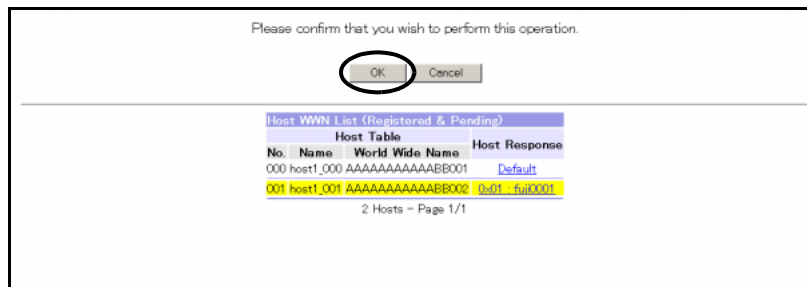
**3** By clicking the [Set] button, [Host WWN List (Registered & Pending)] with the changed Host Response(s) is/are updated in the ETERNUS DX400/DX8000 series.

→ The [Set Host World Wide Name(s) (Check Setting)] screen appears.

**Note**

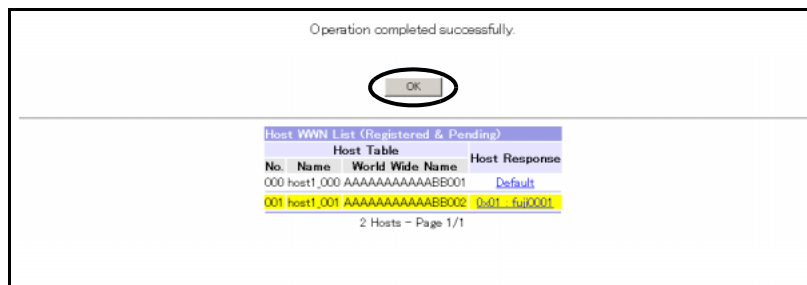
- By clicking the [Host Response] link in the Add WWN, the Host Response List can be checked.
- By clicking the [Host Response No.] link on the [Set Host World Wide Name(s) (Host Response List)] screen, the settings of the selected Host Response will be displayed.
- Details of the sense code conversion can be checked from the [Detail] button on the [Set Host World Wide Name(s) (Host Response Details)] screen ([Set Host World Wide Name(s) (Sense Code Details)] screen).

**4** Click the [OK] button.



→ Displays the [Set Host World Wide Name(s) (Updating Configuration Information)] screen. After the process is successfully completed, the [Set Host World Wide Name(s) (Setting Result)] screen appears.

**5** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 5.4.3 Set iSCSI Host

iSCSI Host information should be set only when the host and the ETERNUS DX400/DX8000 series are connected via iSCSI-CA.

If the iSCSI Host information of the host-side host bus adapters are registered, the Host-Affinity function can use them to restrict which hosts are allowed to access which ETERNUS DX400/DX8000 series Logical Volume.

This function adds/changes/deletes iSCSI Host information without needing to stop ETERNUS DX400/DX8000 series.

When converting a Host Response from the ETERNUS DX400/DX8000 series to the host is necessary, the Host Response must be assigned to each iSCSI Host information or each iSCSI-CA Port. A target to which a Host Response is assigned varies depending on [ON/OFF] of the Host Affinity function.

- When the Host-Affinity function is [ON (Enabled)]  
Set Host Response for each iSCSI Host information using this function.
- When the Host-Affinity function is [OFF (Disabled)]  
Set Host Response for each iSCSI-CA Port using the [Set CA Parameters] function.

The number of iSCSI Host differs depending on the ETERNUS DX400/DX8000 series.

■ Number of iSCSI Hosts/Affinity Groups/Host-Affinity Settings which can be registered

Model	Number of iSCSI Hosts	Number of Affinity Groups (in the system)	Number of Host-Affinity Settings (per port)
ETERNUS DX410	256	256	64
ETERNUS DX440	256	256	64
ETERNUS DX8100	256	256	64
ETERNUS DX8400	1024	512	64
ETERNUS DX8700	1024	512	64

**Caution**



- When deleting iSCSI Host information during operation, stop access from the host corresponding to the iSCSI Host information. To set a new iSCSI Host information, it is not necessary to stop the host access.
- The Host-Affinity Function can be used if the [Affinity Mode] of the target iSCSI-CA Port is [ON (Enabled)].
- If a Host Response is deleted using the [Set Host Response] function, the Host Response of each iSCSI Host information associated with the deleted Host Response is changed to [Host Response No.: Default].
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Resource Domains to which the iSCSI Host can be assigned differ depending on the current user account.
  - When logged on using a Total Administrator account, iSCSI Hosts can be assigned to all the Resource Domains.
  - When logged on using a Resource Domain Administrator account, iSCSI Hosts can be assigned only to the relevant Resource Domain.



**Note**

- When the host and the ETERNUS DX400/DX8000 series are connected via iSCSI-CA, there are two methods to have the host recognize the Logical Volumes of the ETERNUS DX400/DX8000 series. One is [Set LUN Mapping], and the other is the Host-Affinity function, which requires [Set iSCSI Host], [Set Affinity Group], and [Allocate Host-Affinity Group]. The [Affinity Mode] of [Set CA Parameters] set in every iSCSI-CA Port determines which function to use. If [Affinity Mode] is [ON (Enabled)], the Host-Affinity function is enabled, whereas [Set LUN Mapping] is enabled if [Affinity Mode] is [OFF (Disabled)].
- The Host-Affinity function is a device security function for open system servers which is supported by Fibre Channel CAs (FC-CA) and iSCSI-CAs. Not only [Set iSCSI Host] but also [Set Affinity Group] and [Allocate Host-Affinity Group] are required in order to use the Host-Affinity function with iSCSI-CA.
- If appropriate Host Response is not registered in the ETERNUS DX400/DX8000 series, register a Host Response using the [Set Host Response] function.
- For details about Set iSCSI Host, refer to the "ETERNUS DX Disk storage systems Server Connection Guide (iSCSI)".

The following explains the operating procedures of iSCSI Host.  
The following settings are available.

- [Add iSCSI Host \(Retrieve iSCSI Host function used\)](#)
- [Add iSCSI Host \(Retrieve iSCSI Host function not used\)](#)
- [Change iSCSI Host](#)
- [Delete iSCSI Host](#)

These procedures are explained in the following sections.

#### 5.4.3.1 Add iSCSI Host (Retrieve iSCSI Host function used)

This section explains procedures to add iSCSI Host using Retrieve iSCSI Host function.

##### Procedure

- 1 Click [Set iSCSI Host] under the Host Interface Management in the [Configuration] menu.  
→ The [Set iSCSI Host (Initial)] screen appears.
- 2 Click the [Retrieve iSCSI Host] link and collect iSCSI name.

Host Table #	IP Address	Name			Host Response
		iSCSI Name	Alias Name	User Name	
host2_0001					
host-name-1					
<input type="checkbox"/> 0001	10.17.0.0		alias_name_1		Default
chap_user_1					
*****					
host2_0002					
host-name-2					
<input type="checkbox"/> 0002	10.17.16.16		alias_name_2		Default
chap_user_2					
*****					

[Host Response List](#)

→ The [Set iSCSI Host (Select Collected CA Port)] screen appears.

- 3 Select the CA Port to collect the iSCSI name from the list box and click the [Collect] button.

→ The [Set iSCSI Host (Register Collected iSCSI Host)] screen appears.

**Caution**

When the [Collect] button is clicked without selecting a CA Port, an error screen appears.

- 4 Select the iSCSI Host checkbox to register in the device (multiple selections can be made), enter the Alias name and click the [Execute] button.

→ The [Set iSCSI Host (Initial)] screen appears.

**Caution**

If the [Execute] button is clicked in the following situations, an error occurs and a message to that effect is displayed.

- When the iSCSI Host to be registered in the device is not selected
- When the number of iSCSI Host exceeds the maximum registration number
- When an inappropriate character is entered in the Alias name

- 5 Click the [Host Table#] link of the iSCSI Host that is to be added.

→ The [Set iSCSI Host (Add)] screen appears.

Refer to "[A.20.1 Set iSCSI Host \(Add\) Screen](#)" (page 759) for details.

**6** After setting the following items, click the [OK] button.

- Name
- Resource Domain (\*1)
- iSCSI Name (required)
- IP Address
- Alias Name
- User Name
- Password
- Host Response

\*1: The "Resource Domain" item is only displayed when Resource Domains are registered in the ETERNUS DX400/DX8000 series, and when logged on using a Total Administrator account.

→ The [Set iSCSI Host (Initial)] screen appears.

The iSCSI Host information is added to the [iSCSI registration list] (Not added in the ETERNUS DX400/DX8000 series yet).

Repeat Steps 2 to 6 to add more iSCSI Host.

**Caution**

When clicking the [OK] button in the following conditions, an error screen appears.

- Items that cannot be omitted are not set
- Only the user name or only the password is set
- The item is set with inappropriate characters
- The same IP address, Alias name, or iSCSI name is set
- Multiple iSCSI Hosts are set without specifying the IP addresses to a single iSCSI name
- Blanks are left in some part of the IP address field
- Characters other than ASCII code (0x20 – 0x7E) are entered as the Host Table name
- The Host Table name for the existing LAN card is entered



Note

- By clicking the [Host Response List] link, the Host Response List can be checked.
- By clicking the [Host Response No.] link on the [Set iSCSI Host (Host Response List)] screen, the settings of the selected Host Response will be displayed.
- Details of the sense code conversion can be checked from the [Detail] button on the [Set iSCSI Host (Host Response Details)] screen.

**7** Click the [Set] button to register the iSCSI Host information in the device.

Retrieve iSCSI Host

Host Table #	IP Address	Name				Host Response
		iSCSI Name	Alias Name	User Name	Password	
host2_0000						
<input type="checkbox"/> 0000	192.168.1.1	iscsi-name-5-71 string-test-test-no32-1-3-11:aabccddeff	aliasnamec5			Default
host2_0001						
<input type="checkbox"/> 0001	10.17.0.0	host-name-1	alias_name_1			Default
	chap_usr_1					
	*****					

Host Response List

Add Delete

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Jump to Page Next

Set Menu

→ The [Set iSCSI Host (Check)] screen appears.

Caution



When multiple iSCSI Hosts are set without specifying the IP addresses to a single iSCSI name and the [Set] button is clicked, an error screen appears.

**8** Click the [OK] button.

Please confirm that you wish to perform this operation.

---

iSCSI registration list

Host Table #	Name	iSCSI Name	IP Address	Alias Name	User Name	Password	Host Response
0000	host2_0000	iqn.2000-01.00000000000000000000000000000000	192.168.1.1	aliasname05			Default
0001	host2_0001	iqn.2000-01.00000000000000000000000000000001	10.17.0.0	alias_name_1			Default

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The added iSCSI Host information is displayed with a yellow background.

→ Displays the [Set iSCSI Host (Updating Configuration Information)] screen. After the process is successfully completed, the [Set iSCSI Host (Result)] screen appears.

**9** Click the [OK] button.

Operation completed successfully.

---

iSCSI registration list

Host Table #	Name	iSCSI Name	IP Address	Alias Name	User Name	Password	Host Response
0000	host2_0000	iqn.2000-01.00000000000000000000000000000000	192.168.1.1	aliasname05			Default
0001	host2_0001	iqn.2000-01.00000000000000000000000000000001	10.17.0.0	alias_name_1			Default

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→ Returns to the [Menu] screen.

End of procedure

### 5.4.3.2 Add iSCSI Host (Retrieve iSCSI Host function not used)

This section explains procedures to add iSCSI Host not using Retrieve iSCSI Host function.

#### Procedure

- 1 Click [Set iSCSI Host] under the Host Interface Management in the [Configuration] menu.  
 → The [Set iSCSI Host (Initial)] screen appears.
- 2 Click the [Add] button.

The screenshot shows the 'Retrieve iSCSI Host' screen. At the top, there is a link 'Retrieve iSCSI Host'. Below it is a table titled 'iSCSI registration list'. The table has columns: Host Table #, IP Address, Name (iSCSI Name, Alias Name, User Name, Password), and Host Response. There are two entries in the table, both with checkboxes in the Host Table # column. The first entry has Host Table # 0001, IP Address 10.17.0.0, and Host Response Default. The second entry has Host Table # 0002, IP Address 10.17.16.16, and Host Response Default. Below the table, there is a link 'Host Response List'. At the bottom right, there are two buttons: 'Add' and 'Delete'. The 'Add' button is circled. At the bottom center, there are two buttons: 'Set' and 'Menu'.

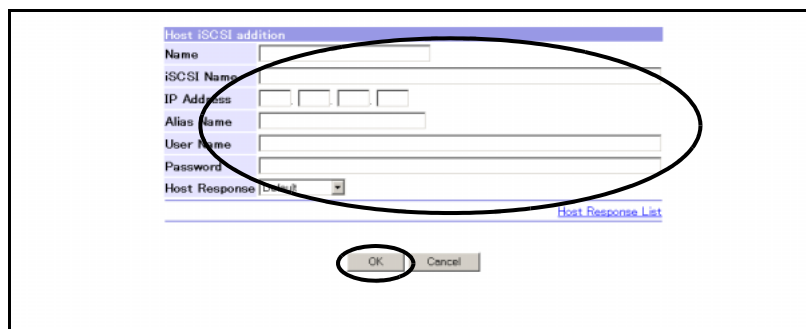
Host Table #	IP Address	Name iSCSI Name Alias Name User Name Password	Host Response
<input type="checkbox"/> 0001	10.17.0.0	host2_0001 host-name-1 chap_usr_1 ***** alias_name_1	Default
<input type="checkbox"/> 0002	10.17.16.16	host2_0002 host-name-2 chap_usr_2 ***** alias_name_2	Default

- The [Set iSCSI Host (Add)] screen appears.  
 Refer to "[A.20.1 Set iSCSI Host \(Add\) Screen](#)" ([page 759](#)) for screen details.

**3** After setting the following items, click the [OK] button.

- Name
- Resource Domain (\*1)
- iSCSI Name (required)
- IP Address
- Alias Name
- User Name
- Password
- Host Response

\*1: The "Resource Domain" item is only displayed when Resource Domains are registered in the ETERNUS DX400/DX8000 series, and when logged on using a Total Administrator account.

The image shows a screenshot of a software interface titled "Host iSCSI addition". It contains several input fields: "Name", "iSCSI Name", "IP Address" (with sub-fields for octets), "Alias Name", "User Name", "Password", and a "Host Response" dropdown menu. A link labeled "Host Response List" is visible below the dropdown. At the bottom of the dialog are "OK" and "Cancel" buttons. A large black oval is drawn around the "Name", "iSCSI Name", "IP Address", "Alias Name", "User Name", and "Password" fields. Another smaller black oval is drawn around the "OK" button.

→ The [Set iSCSI Host (Initial)] screen appears.  
The iSCSI Host information is added to the [iSCSI registration list] (Not added in the ETERNUS DX400/DX8000 series yet).  
Repeat Steps 2 to 3 to add more iSCSI Host.

**Caution**



When clicking the [OK] button in the following conditions, an error screen appears.

- Items that cannot be omitted are not set
- Only the user name or only the password is set
- The item is set with inappropriate characters
- The same IP address, Alias name, or iSCSI name is set
- Multiple iSCSI Hosts are set without specifying the IP addresses to a single iSCSI name
- Blanks are left in some part of the IP address field
- Characters other than ASCII code (0x20 – 0x7E) are entered as the Host Table name
- The Host Table name for the existing LAN card is entered
- The selected Resource Domain differs from the Resource Domain of the Host Response (An error does not occur when either or both of the Resource Domains are the Shared Resource)



Note

- By clicking the [Host Response List] link, the Host Response List can be checked.
- By clicking the [Host Response No.] link on the [Set iSCSI Host (Host Response List)] screen, the settings of the selected Host Response will be displayed.
- Details of the sense code conversion can be checked from the [Detail] button on the [Set iSCSI Host (Host Response Details)] screen.

**4** Click the [Set] button to register the iSCSI Host information in the device.

→ The [Set iSCSI Host (Check)] screen appears.

**Caution**

When multiple iSCSI Hosts are set without specifying the IP addresses to a single iSCSI name and the [Set] button is clicked, an error screen appears.

**5** Click the [OK] button.

Please confirm that you wish to perform this operation.

---

iSCSI registration list

Host Table #	Name	iSCSI Name	Host Response
	IP Address	Alias Name	
	User Name		
	Password		
0000	host2_0000		
	iscsi-name-no-5-71-string-test-test-no-32-1-3-11-aabbccddeeff		
	192.168.1.1	aliasname05	Default
	host2_0001		
	host-name-1		
0001	10.17.0.0	alias_name_1	Default
	chap_usr_1		
	*****		

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The added iSCSI Host information is displayed with a yellow background.

→ Displays the [Set iSCSI Host (Updating Configuration Information)] screen. After the process is successfully completed, the [Set iSCSI Host (Result)] screen appears.

**6** Click the [OK] button.

Operation completed successfully.

---

iSCSI registration list

Host Table #	Name	iSCSI Name	Host Response
	IP Address	Alias Name	
	User Name		
	Password		
0000	host2_0000		
	iscsi-name-no-5-71-string-test-test-no-32-1-3-11-aabbccddeeff		
	192.168.1.1	aliasname05	Default
	host2_0001		
	host-name-1		
0001	10.17.0.0	alias_name_1	Default
	chap_usr_1		
	*****		

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→ Returns to the [Menu] screen.

End of procedure

### 5.4.3.3 Change iSCSI Host

This section explains procedures for changing the registered iSCSI Host.

#### Procedure

- 1 Click [Set iSCSI Host] under the Host Interface Management in the [Configuration] menu.  
→ The [Set iSCSI Host (Initial)] screen appears.
- 2 Click the [Host Table#] link of the iSCSI Host you wish to change.

Host Table #	IP Address	Alias Name	User Name	Password	Host Response
host2_0001	10.17.0.0	alias_name_1	chap.user_1	*****	Default
host2_0002	10.17.16.16	alias_name_2	chap.user_2	*****	Default

[Host Response List](#)

[Add](#) [Delete](#)

[Set](#) [Menu](#)

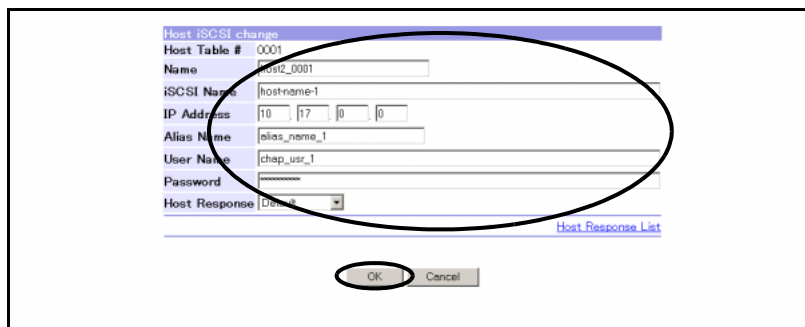
- The [Set iSCSI Host (Change)] screen appears.  
Refer to ["A.20.1 Set iSCSI Host \(Add\) Screen" \(page 759\)](#) for screen details.

**3** After changing the items, click the [OK] button.

Items which can be changed are as follows.

- Name
- Resource Domain (\*1)
- iSCSI Name (required)
- IP Address
- Alias Name
- User Name
- Password
- Host Response

\*1: The "Resource Domain" item is only displayed when Resource Domains are registered in the ETERNUS DX400/DX8000 series, and when logged on using a Total Administrator account.



→ The [Set iSCSI Host (Initial)] screen appears.

The changed iSCSI Host information is updated to the [iSCSI registration list] (Not updated in the ETERNUS DX400/DX8000 series yet).

Repeat Steps 2 to 3 to change more iSCSI Hosts.

**Caution**

When clicking the [OK] button in the following conditions, an error screen appears.

- Items that cannot be omitted are not set
- Only the user name or only the password is set
- The item is set with inappropriate characters
- The same IP address, Alias name, or iSCSI name is set
- Multiple iSCSI Hosts are set without specifying the IP addresses to a single iSCSI name
- Blanks are left in some part of the IP address field
- Characters other than ASCII code (0x20 – 0x7E) are entered as the Host Table name
- The Host Table name for the existing LAN card is entered



Note

- By clicking the [Host Response List] link, the Host Response List can be checked.
- By clicking the [Host Response No.] link on the [Set iSCSI Host (Host Response List)] screen, the settings of the selected Host Response will be displayed.
- Details of the sense code conversion can be checked from the [Detail] button on the [Set iSCSI Host (Host Response Details)] screen.

**4** Click the [Set] button to register the iSCSI Host information in the device.

[Retrieve iSCSI Host](#)

Host Table #	IP Address	Name			Host Response
		iSCSI Name	Alias Name	User Name	
host2_0001	host-name-0001				
<input type="checkbox"/> 0001	10.17.0.0	alias_name_0001			Default
	chap_user_0001				*****
host2_0002	host-name-2				
<input type="checkbox"/> 0002	10.17.16.16	alias_name_2			Default
	chap_user_2				*****

[Host Response List](#)

Add Delete

Set Menu

→ The [Set iSCSI Host (Check)] screen appears.

**Caution**

When multiple iSCSI Hosts are set without specifying the IP addresses to a single iSCSI name and the [Set] button is clicked, an error screen appears.

**5** Click the [OK] button.

Please confirm that you wish to perform this operation.

---

iSCSI registration list

Host Table #	IP Address	Name iSCSI Name Alias Name User Name Password	Host Response
host2_0001			
host-name-0001			
0001	10.17.0.0	alias_name_0001	Default
chap_user_0001			
*****			
host2_0002			
host-name-2			
0002	10.17.16.16	alias_name_2	Default
chap_user_2			
*****			

The changed iSCSI Host information is displayed with a yellow background.

→ Displays the [Set iSCSI Host (Updating Configuration Information)] screen. After the process has successfully completed, the [Set iSCSI Host (Result)] screen appears.

**6** Click the [OK] button.

Operation completed successfully.

---

iSCSI registration list

Host Table #	IP Address	Name iSCSI Name Alias Name User Name Password	Host Response
host2_0001			
host-name-0001			
0001	10.17.0.0	alias_name_0001	Default
chap_user_0001			
*****			
host2_0002			
host-name-2			
0002	10.17.16.16	alias_name_2	Default
chap_user_2			
*****			

→ Returns to the [Menu] screen.

**End of procedure**

#### 5.4.3.4 Delete iSCSI Host

This section explains procedures to delete an iSCSI Host.

##### Caution

- When deleting an iSCSI Host information registered in the device, stop access from the host corresponding to the iSCSI Host information.
- Before deleting an iSCSI Host used for Host Affinity function, delete the Host Affinity settings for that iSCSI Host from the [Allocate Host-Affinity Group] menu.

### Procedure

- 1 Click [Set iSCSI Host] under the Host Interface Management in the [Configuration] menu.  
→ The [Set iSCSI Host (Initial)] screen appears.
- 2 Select the checkbox(es) for the iSCSI Host to be deleted (multiple selections can be made), and click the [Delete] button.

The screenshot shows the 'Retrieve iSCSI Host' screen. At the top, there is a link 'Retrieve iSCSI Host'. Below it is a table titled 'iSCSI registration list'. The table has columns: Host Table #, IP Address, Name (iSCSI Name, Alias Name, User Name, Password), and Host Response. There are two rows of data. The first row has Host Table # 0001, IP Address 10.17.0.0, Alias Name alias\_name\_1, User Name chap\_user\_1, Password \*\*\*\*\* (masked), and Host Response Default. The second row has Host Table # 0002, IP Address 10.17.16.16, Alias Name alias\_name\_2, User Name chap\_user\_2, Password \*\*\*\*\* (masked), and Host Response Default. Checkboxes are present next to Host Table # 0001 and 0002. Below the table is a link 'Host Response List'. At the bottom right, there are 'Add' and 'Delete' buttons. The 'Delete' button is circled. At the bottom center, there are 'Set' and 'Menu' buttons.

Host Table #	IP Address	Name iSCSI Name Alias Name User Name Password	Host Response
host2_0001 host-name-1 <input type="checkbox"/> 0001	10.17.0.0	alias_name_1 chap_user_1 *****	Default
host2_0002 host-name-2 <input type="checkbox"/> 0002	10.17.16.16	alias_name_2 chap_user_2 *****	Default

→ The [Set iSCSI Host (Deletion Check)] screen appears.

##### Caution

When the [Delete] button is clicked without selecting the target to be deleted, an error screen appears.



Note

- By clicking the [Host Response List] link in the [iSCSI registration list], the Host Response List can be checked.
- By clicking the [Host Response No.] link on the [Set iSCSI Host (Host Response List)] screen, the settings of the selected Host Response will be displayed.
- Details of the sense code conversion can be checked from the [Detail] button on the [Set iSCSI Host (Host Response Details)] screen.

### 3 Click the [OK] button.

Please confirm that you wish to perform this operation.

---

iSCSI list to delete

Host Table #	IP Address	Name		Host Response
		iSCSI Name	Alias Name	
		User Name	Password	
host2_0002				
host-name-2				
0002	10.17.16.16	alias_name_2		Default
chap_user_2				
*****				

→ The [Set iSCSI Host (Initial)] screen appears as the selected iSCSI Host is deleted (Not updated in the ETERNUS DX400/DX8000 series yet).

### 4 Click the [Set] button to delete the selected iSCSI Host.

[Retrieve iSCSI Host](#)

iSCSI registration list

Host Table #	IP Address	Name		Host Response
		iSCSI Name	Alias Name	
		User Name	Password	
host2_0001				
host-name-1				
<input type="checkbox"/> 0001	10.17.0.0	alias_name_1		Default
chap_usr_1				
*****				

[Host Response List](#)

→ The [Set iSCSI Host (Check)] screen appears.

**5** Click the [OK] button.

Please confirm that you wish to perform this operation.

---

iSCSI registration list

Host Table #	IP Address	Name		Host Response
		iSCSI Name	Alias Name	
		User Name	Password	
host2_0001				
host-name-1				
0001	10.17.0.0	alias_name_1		Default
chap_user_1				
*****				

→ Displays the [Set iSCSI Host (Updating Configuration Information)] screen. After the process is successfully completed, the [Set iSCSI Host (Result)] screen appears.

**6** Click the [OK] button.

Operation completed successfully.

---

iSCSI registration list

Host Table #	IP Address	Name		Host Response
		iSCSI Name	Alias Name	
		User Name	Password	
host2_0001				
host-name-1				
0001	10.17.0.0	alias_name_1		Default
chap_user_1				
*****				

→ Returns to the [Menu] screen.

End of procedure

## 5.4.4 Set Affinity Group

On this screen, add/change/delete Affinity Groups related to the Host-Affinity function without stopping ETERNUS DX400/DX8000 series operations.

Affinity Group is the mapping information between a Logical Unit Number (LUN) recognizable for hosts and a Logical Volume Number managed inside the ETERNUS DX400/DX8000 series.

Set Affinity Group only when hosts and the ETERNUS DX400/DX8000 series are connected via FC-CA or iSCSI-CA.

The maximum numbers of WWNs, iSCSI Hosts, Affinity Groups, and Host-Affinity Group Settings which can be registered vary depending on each model. The following shows the number which can be set for each model.

- The number of WWNs/iSCSI Hosts/Affinity Groups/Host-Affinity Groups settings which can be registered

Model	Number of WWNs	Number of iSCSI Hosts	Number of Affinity Groups (in the system)	Number of Host-Affinity Settings (per port)
ETERNUS DX410	256	256	256	64
ETERNUS DX440	256	256	256	64
ETERNUS DX8100	256	256	256	64
ETERNUS DX8400	1024	1024	512	64
ETERNUS DX8700	1024	1024	512	64

When setting Affinity Groups, the number of LUNs that can access from the host varies depending on the host.

The following shows the possible number of accesses.

- Number of LUN that can access

Host Specific Mode of the Host Response	Affinity group	
	Not Concatenated	Concatenated
HP-UX Mode (SCC)	512 LUNs (0x000 – 0x1FF)	1024 LUNs (0x000 – 0x3FF)
AIX Mode (Extended Address) Linux/NR1000V Mode (Extended Address)	512 LUNs (0x000 – 0x1FF)	–
Others	256 LUNs (0x000 – 0x0FF) (*1)	–

\*1: However the LUN Mapping can be created up to 512 LUNs, hosts can access the first 256 LUNs (0x000 to 0x0FF).

### Caution

- When deleting the Affinity Group during operation, stop access from the host that assigns the Affinity Group by the [Allocate Host-Affinity Group] function.  
To delete Affinity Groups during operation, it is necessary to delete the Host-Affinity Group settings of the Affinity Groups to be deleted using the [Allocate Host-Affinity Group] function in advance.
- When changing an in use Affinity Group, host access should be handled as follows:
  - Host access should be stopped when changing or deleting a Logical Volume used by an in use Affinity Group. Use the [Allocate Host-Affinity Group] function.
  - Host access does not need to be stopped when adding a new Logical Volume to an in use Affinity Group.
- Host access does not need to be stopped when adding a new Affinity Group.
- The Host-Affinity function can be used if the [Affinity Mode] of the target FC-CA Port or iSCSI-CA Port is [ON (Enabled)].

- Mapping to a work volume during RAID Migration is not allowed. The operating status of migration (the work volume information) can be checked by the [Progress of RAID Migration] function. "Work Volume" is a temporary volume created for Migration operation.
- If no Open Volume, Snap Data Volume, Thin Provisioning Volume, or MVV Volume is defined, this function cannot be used.
- On the ETERNUS DX400/DX8000 series, 1024 LUNs can be mapped by concatenating two Affinity Groups. Hosts can access 1024 LUNs only when the host specific mode of the Host Response is "HP-UX Mode (SCC)". Please note the above when linking the host and Affinity Group using [Allocate Host-Affinity Group].
- Snap Data Pool Volume cannot be mapped.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Resource Domains to which the Affinity Group can be allocated differ depending on the current user account.
  - When logged on using a Total Administrator account, Affinity Groups can be assigned to all the Resource Domains.
  - When logged on using a Resource Domain Administrator account, Affinity Groups can be assigned only to the relevant Resource Domain.

---

 Note

- When a host and the ETERNUS DX400/DX8000 series are connected via FC-CA or iSCSI-CA, there are two ways for a host to recognize Logical Volumes in the ETERNUS DX400/DX8000 series. One is [Set LUN Mapping], and the other is the Host-Affinity function, which relies on [Set Host World Wide Name(s)]/[Set iSCSI Host], [Set Affinity Group] and [Allocate Host-Affinity Group]. [Affinity Mode] in [Set CA Parameters] for each FC-CA Port or iSCSI-CA Port determines which function to use. If [Affinity Mode] is [ON (Enabled)], the Host-Affinity function is enabled, whereas [Set LUN Mapping] is enabled if [Affinity Mode] is [OFF (Disabled)].
- The Host-Affinity function is a device security function for open system servers which is supported by Fibre Channel CAs (FC-CA) and iSCSI-CAs. To use the Host-Affinity function, not only [Set Affinity Group] but also [Set Host World Wide Name(s)]/[Set Host iSCSI] and [Allocate Host-Affinity Group] are required.

---

The following explains the setting procedures of Affinity Group.  
The following settings are available.

- [Add Affinity Group](#)
- [Change Affinity Group](#)
- [Delete Affinity Group](#)

These procedures are explained in the following sections.

### 5.4.4.1 Add Affinity Group

This section explains procedures to add an Affinity Group.

#### Procedure

- 1 Click [Set Affinity Group] under the Host Interface Management in the [Configuration] menu.

→ The [Set Affinity Group (Initial)] screen appears.

Refer to ["A.21.1 Set Affinity Group \(Initial\) Screen" \(page 761\)](#) for screen details.

#### Caution

If no Open Volume, Snap Data Volume, Thin Provisioning Volume, or MVV Volume is created, the Affinity Group cannot be added. When a message to that effect is displayed, click the [OK] button to return to the [Menu] screen.

- 2 Select the following items, and click the [Add] button.

- New Affinity Group  
Select from the list box. (required)
- Additional Affinity Group  
When concatenating an Affinity Group, select from the list box.
- Affinity Group Name  
Enter the Affinity Group name in the text box.
- Resource Domain  
Select the Resource Domain to allocate an Affinity Group.  
The "Resource Domain" item is displayed when registered in the ETERNUS DX400/DX8000 series, and when logged on using a Total Administrator account.

The screenshot shows a web interface titled "Affinity Group list". It contains a table with two columns: "Affinity Group No" and "Name". Below the table, there are three input fields: "New Affinity Group#:", "Additional Affinity Group#:", and "Affinity Group Name:". The "Add" button is circled in red.

→ The [Set Affinity Group (Set LUN Mapping)] screen appears.

---

**Caution** 

In the following cases, an error screen appears.

- When the [Add] button is clicked after entering characters other than ASCII characters in the Affinity Group Name
  - When the [Add] button is clicked after entering an already existing Affinity Group Name
  - When the [Add] button is clicked without selecting a New Affinity Group
  - When the [Add] button is clicked after selecting the Additional Affinity Group without selecting a New Affinity Group
  - When the [Add] button is clicked after selecting the same Affinity Group No. in the New Affinity Group field and the Additional Affinity Group field
- 

 **Note**

- When the [Additional Affinity Group] is specified, give the Affinity Group Name to the concatenated (coupled) Affinity Group. In this concatenated Affinity Group, 1024 LUN mappings can be created.
  - When Resource Domains are registered in the ETERNUS DX400/DX8000 series, and when logged on using a Total Administrator account, the [Resource Domain to display] list box and the [Refine] button are displayed. Select the Resource Domain for the Affinity Group to be displayed from the [Resource Domain to display] list box and click the [Refine] button to display the Affinity Groups that are assigned to the selected Resource Domain. After refining the displayed Affinity Groups, the [Resource Domain] field in the [Affinity Group List] is not displayed.
-

### 3 Create LUN Mapping information.

#### ■ To set using [Set Range]

Create LUN Mapping information for any sequential LUNs in the Affinity Group.

- (1) Select the [Set Range] radio button.
- (2) Select the first and last LUNs from the list box to create LUN Mapping information to sequential LUNs.
- (3) Enter the starting Logical Volume number in the text box for multiple allocations.
- (4) Click the [Execute] button to create LUN Mapping information consisting of LUN and Logical Volume number in the [Affinity Group] displayed in the lower part of the screen.

Open Volume List

LUN Mapping Operations

☒ Set Range: From LUN 0x000 To LUN 0x1FF  
 Start Volume# 0x0000

☐ Delete Range: From LUN 0x To LUN 0x

☐ Delete ALL: Delete all LUN-Volume# mapping for this Affinity Group.

Execute

Set Return

Affinity Group Name: p.p.00

Affinity Group# 0x000							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036

#### ■ To set manually

Enter the Open Volume No. corresponding to the LUN in the Volume# text box.

- (1) Directly enter the LUN and Logical Volume number of LUN Mapping information in the [Affinity Group], displayed in the lower part of the screen.

Open Volume List

LUN Mapping Operations

☒ Set Range: From LUN 0x000 To LUN 0x1FF  
 Start Volume# 0x0000

☐ Delete Range: From LUN 0x To LUN 0x

☐ Delete ALL: Delete all LUN-Volume# mapping for this Affinity Group.

Execute

Set Return

Affinity Group Name: p.p.00

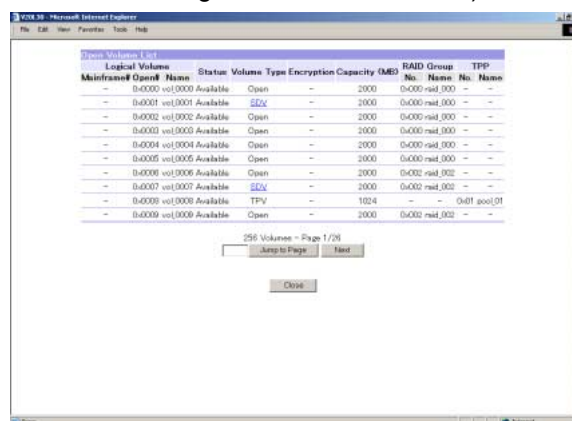
Affinity Group# 0x000							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x	0x010	0x	0x020	0x	0x030	0x
0x001	0x	0x011	0x	0x021	0x	0x031	0x
0x002	0x	0x012	0x	0x022	0x	0x032	0x
0x003	0x	0x013	0x	0x023	0x	0x033	0x
0x004	0x	0x014	0x	0x024	0x	0x034	0x
0x005	0x	0x015	0x	0x025	0x	0x035	0x
0x006	0x	0x016	0x	0x026	0x	0x036	0x

**Caution** 

- When operating manually (inputting directly), you do not need to select a radio button.
- If the [Execute] button is clicked in the following conditions, an error screen appears.
  - When the radio button for Set Range, Delete Range, or Delete ALL, is not selected
  - Either the [From: LUN] or [To: LUN] is not selected in the Set Range or Delete Range, or both are not selected in the Set Range or Delete Range
  - The [Start Volume#] is not specified for the Set Range
  - Incorrect characters are entered in the [Start Volume#] when specifying the Set Range, or the value in the [Start Volume#] exceeds the maximum Logical Volume number for the Open Volumes when specifying the Set Range
- If the [Set] button is clicked in the following conditions, an error screen appears.
  - When inputting characters other than ASCII code (0x20 – 0x7E) for Affinity Group Name
  - When inputting an existing Affinity Group name
  - Incorrect characters, an undefined Open Volume number, a Snap Data Pool Volume number, or the Temporary Volume number are entered for the Volume#, or the same Open Volume number is entered for multiple LUNs
  - A Work Volume number for an active RAID Migration is specified as the Volume#
  - A Work Volume number for an active TPV balancing is specified as the Volume#
  - When a volume number that is not assigned to a Resource Domain to which the Affinity Group belongs is specified as the Volume#, or when a volume number that is not assigned to a Shared Resource, is specified as the Volume#

 **Note**

Clicking the [Open Volume List] link displays the list of Open Logical Volumes (Open Volume/Snap Data Volume/Snap Data Pool Volume/Thin Provisioning Volume/MVV Volume) in another window.



Mainframe#	Open#	Name	Status	Volume	Type	Encryption	Capacity (MB)	RAID Group	No.	Name	No.	Name
-	0-0000	vol(0000) Available	Open	-	-	-	2000	0-0000-raid_000	-	-	-	-
-	0-0001	vol(0001) Available	Open	-	-	-	2000	0-0000-raid_000	-	-	-	-
-	0-0002	vol(0002) Available	Open	-	-	-	2000	0-0000-raid_000	-	-	-	-
-	0-0003	vol(0003) Available	Open	-	-	-	2000	0-0000-raid_000	-	-	-	-
-	0-0004	vol(0004) Available	Open	-	-	-	2000	0-0000-raid_000	-	-	-	-
-	0-0005	vol(0005) Available	Open	-	-	-	2000	0-0000-raid_000	-	-	-	-
-	0-0006	vol(0006) Available	Open	-	-	-	2000	0-0000-raid_000	-	-	-	-
-	0-0007	vol(0007) Available	Open	-	-	-	2000	0-0000-raid_000	-	-	-	-
-	0-0008	vol(0008) Available	TPV	-	-	-	1024	-	-	-	0-001 pool(0)	-
-	0-0009	vol(0009) Available	Open	-	-	-	2000	0-0000-raid_000	-	-	-	-

**4** Click the [Set] button.

Open Volume List

**LUN Mapping Operations**

☒ Set Range: From LUN 0x [000] To LUN 0x [1FF]  
Start Volume# 0x [0000]

☐ Delete Range: From LUN 0x [ ] To LUN 0x [ ]

☐ Delete ALL: Delete all LUN-Volume# mapping for this Affinity Group

Execute

Set Return

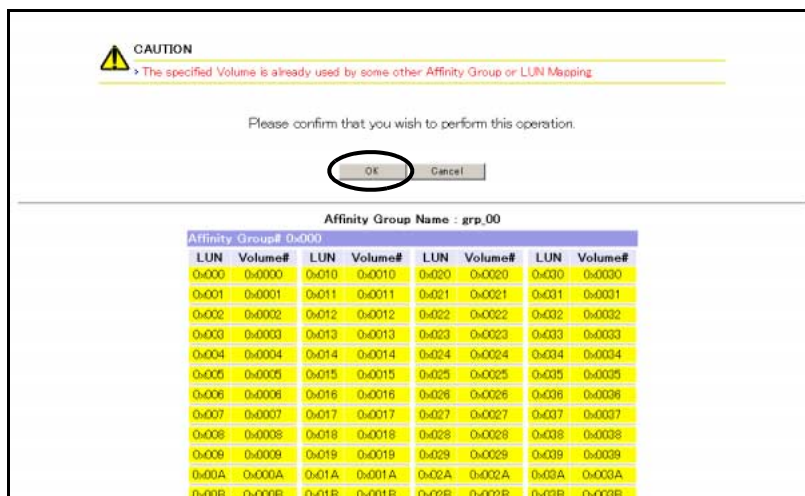
Affinity Group Name : jsp,00

LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036

The screen that will be displayed varies according to the status of mapping for the specified volume.

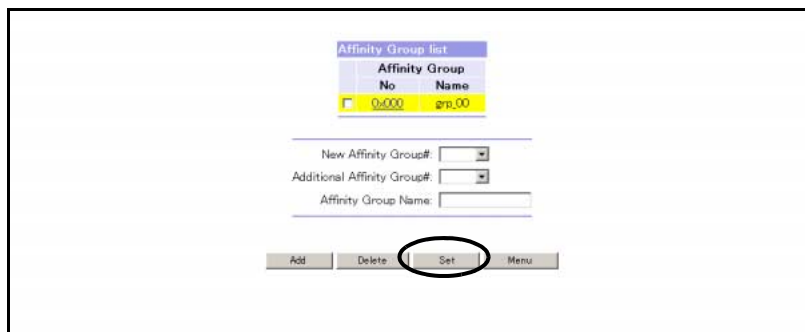
- When the specified volume is already used by another Affinity Group or LUN Mapping:  
→ The [Set Affinity Group (Check LUN Mapping Setting)] screen appears.  
A Volume that is already used by another Affinity Group or LUN Mapping is displayed with a yellow background.  
Move on to [Step 5](#).
- When the specified volume is not being used by any Affinity Group or LUN Mapping:  
→ The [Set Affinity Group (Initial)] screen appears.  
The Affinity Group information is added to the [Affinity Group List] (Not updated in the ETERNUS DX400/DX8000 series yet).  
The Affinity Group to be added is displayed with a yellow background.  
Repeat Steps 2 to 4 to add more Affinity Group(s).  
After completing the addition of Affinity Groups, move on to [Step 6](#).

**5** Check the Mapping status of the target volumes, and click the [OK] button.



→ The [Set Affinity Group (Initial)] screen appears.  
 The Affinity Group information is added to the [Affinity Group List] (Not updated in the ETERNUS DX400/DX8000 series yet).  
 The Affinity Group to be added is displayed with a yellow background.  
 Repeat Steps 2 to 4 to add more Affinity Group(s).  
 After completing the addition of Affinity Groups, move on to [Step 6](#).

**6** Click the [Set] button to update in the ETERNUS DX400/DX8000 series.



→ The [Set Affinity Group (Check Setting)] screen appears.

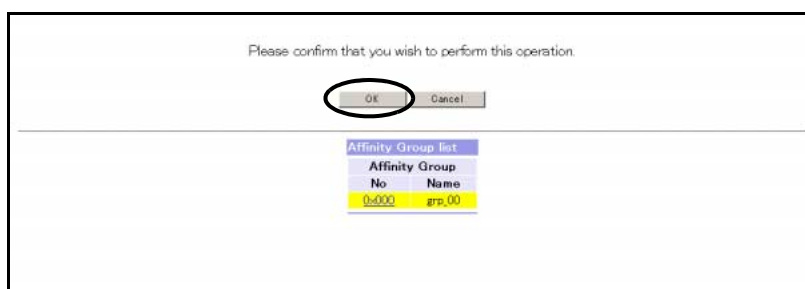


Note

If you click the [Affinity Group No.] link in the Affinity Group List, the LUN Mapping List of the Affinity Group No. is displayed in another window.

Affinity Group Name : grp_00							
Affinity Group# 0x000							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036
0x007	0x0007	0x017	0x0017	0x027	0x0027	0x037	0x0037
0x008	0x0008	0x018	0x0018	0x028	0x0028	0x038	0x0038
0x009	0x0009	0x019	0x0019	0x029	0x0029	0x039	0x0039
0x00A	0x000A	0x01A	0x001A	0x02A	0x002A	0x03A	0x003A
0x00B	0x000B	0x01B	0x001B	0x02B	0x002B	0x03B	0x003B
0x00C	0x000C	0x01C	0x001C	0x02C	0x002C	0x03C	0x003C
0x00D	0x000D	0x01D	0x001D	0x02D	0x002D	0x03D	0x003D
0x00E	0x000E	0x01E	0x001E	0x02E	0x002E	0x03E	0x003E
0x00F	0x000F	0x01F	0x001F	0x02F	0x002F	0x03F	0x003F

## 7 Click the [OK] button.



→ The [Set Affinity Group (Updating Configuration Information)] screen is displayed. After the process is successfully completed, the [Set Affinity Group (Setting Result)] screen appears.

## 8 Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 5.4.4.2 Change Affinity Group

This section explains procedures to change the registered Affinity Group. Affinity Group name and LUN Mapping information can be changed.

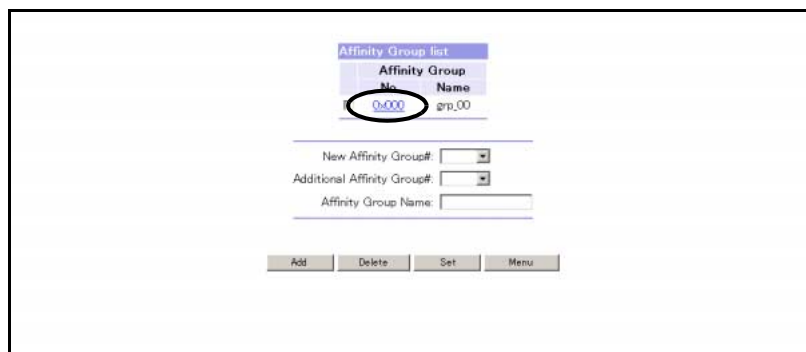
#### Caution



- Host access does not need to be halted when adding LUN Mapping information (LUNs and Logical Volume numbers).
- Host access to the associated Affinity Groups does need to be halted when changing/deleting LUN Mapping information (LUNs and Logical Volume numbers).

#### Procedure

- 1 Click [Set Affinity Group] under the Host Interface Management in the [Configuration] menu.  
→ The [Set Affinity Group (Initial)] screen appears.
- 2 Click the [Affinity Group No.] link to be changed.



→ The [Set Affinity Group (Set LUN Mapping)] screen appears.



#### Note

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, and when logged on using a Total Administrator account, the [Resource Domain to display] list box and the [Refine] button are displayed. Select the Resource Domain for the Affinity Group to be displayed from the [Resource Domain to display] list box and click the [Refine] button to display the Affinity Groups that are assigned to the selected Resource Domain. After refining the displayed Affinity Groups, the [Resource Domain] field in the [Affinity Group List] is not displayed.

### 3 Change LUN Mapping information.

#### ■ To change using [Set Range]

Create LUN Mapping information for any sequential LUNs in the Affinity Group.

(1) Select the [Set Range] radio button.

(2) Select the first and last LUNs from the list box to create LUN Mapping information to sequential LUNs.

(3) Enter the starting Logical Volume number in the text box for multiple allocations.

(4) Click the [Execute] button to create LUN Mapping information consisting of LUN and Logical Volume number in the [Affinity Group] displayed in the lower part of the screen.

Open Volume List

LUN Mapping Operations

☒ Set Range: From LUN 0x000 To LUN 0x1FF  
 Start Volume# 0x0000

☐ Delete Range: From LUN 0x To LUN 0x

☐ Delete ALL: Delete all LUN-Volume# mapping for this Affinity Group.

Execute

Set Return

Affinity Group Name : p.p.00

Affinity Group# 0x000							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036

#### ■ To change and delete manually

Enter the Open Volume number corresponding to the LUN, or delete the entered value, in the Volume# text box.

(1) Directly enter or delete the LUN and Logical Volume number of LUN Mapping information in the [Affinity Group] displayed in the lower part of the screen.

Open Volume List

LUN Mapping Operations

☒ Set Range: From LUN 0x000 To LUN 0x1FF  
 Start Volume# 0x0000

☐ Delete Range: From LUN 0x To LUN 0x

☐ Delete ALL: Delete all LUN-Volume# mapping for this Affinity Group.

Execute

Set Return

Affinity Group Name : p.p.00

Affinity Group# 0x000							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x	0x010	0x	0x020	0x	0x030	0x
0x001	0x	0x011	0x	0x021	0x	0x031	0x
0x002	0x	0x012	0x	0x022	0x	0x032	0x
0x003	0x	0x013	0x	0x023	0x	0x033	0x
0x004	0x	0x014	0x	0x024	0x	0x034	0x
0x005	0x	0x015	0x	0x025	0x	0x035	0x
0x006	0x	0x016	0x	0x026	0x	0x036	0x

■ To delete using [Delete Range]

- (1) Select the [Delete Range] radio button.
- (2) Select the first and last LUNs from the list box to create LUN Mapping information to sequential LUNs.
- (3) Click the [Execute] button to delete the selected LUN Mapping information from the [Affinity Group] shown in the lower part of the screen (Not yet deleted in the ETERNUS DX400/DX8000 series).

Open Volume List

**LUN Mapping Operations**

Set Range: From LUN 0x000 To LUN 0x1FF  
 Start Volume# 0x0000

☒ Delete Range: From LUN 0x000 To LUN 0x1FF

☐ Delete ALL: Delete all LUN-Volume# mapping for this Affinity Group.

Execute

Set Return

Affinity Group Name : ep00

Affinity Group# 0x000							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036

■ To delete using [Delete ALL]

- (1) Select the [Delete ALL] radio button.
- (2) Click the [Execute] button to delete all the LUN Mapping information allocated to the CA Port which is selected on the [Initial screen] (Not yet deleted in the ETERNUS DX400/DX8000 series).

Open Volume List

**LUN Mapping Operations**

Set Range: From LUN 0x000 To LUN 0x1FF  
 Start Volume# 0x0000

☐ Delete Range: From LUN 0x000 To LUN 0x1FF

☒ Delete ALL: Delete all LUN-Volume# mapping for this Affinity Group.

Execute

Set Return

Affinity Group Name : ep00

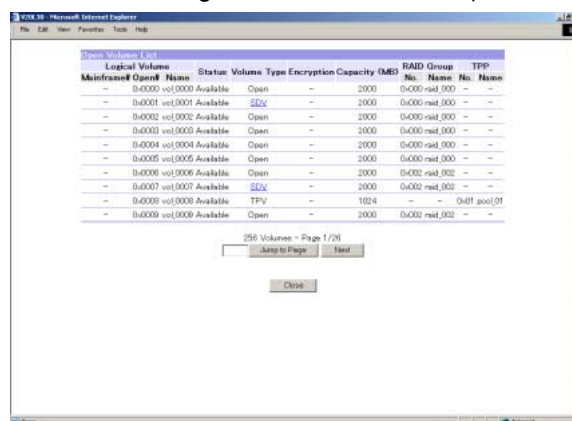
Affinity Group# 0x000							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036

**Caution** 

- When operating manually (inputting directly), you do not need to select a radio button.
- If the [Execute] button is clicked in the following conditions, an error screen appears.
  - When the radio button for Set Range, Delete Range, or Delete ALL, is not selected
  - Either the [From: LUN] or [To: LUN] is not selected in the Set Range or Delete Range, or both are not selected in the Set Range or Delete Range
  - The [Start Volume#] is not specified for the Set Range
  - Incorrect characters are entered in the [Start Volume#] when specifying the Set Range, or the value in the [Start Volume#] exceeds the maximum Logical Volume number for the Open Volumes when specifying the Set Range
- If the [Set] button is clicked in the following conditions, an error screen appears.
  - When inputting characters other than ASCII code (0x20 – 0x7E) for the Affinity Group Name
  - When inputting an existing Affinity Group name
  - Incorrect characters, an undefined Open Volume number, a Snap Data Pool Volume number, or the Temporary Volume number are entered for the Volume#, or the same Open Volume number is entered for multiple LUNs
  - A Work Volume number for an active RAID Migration is specified as the Volume#
  - A Work Volume number for an active TPV balancing is specified as the Volume#
  - When a volume number that is not assigned to a Resource Domain to which the Affinity Group belongs is specified as the Volume#, or when a volume number that is not assigned to a Shared Resource is specified as the Volume#

 **Note**

Clicking the [Open Volume List] link displays the list of Open Logical Volumes (Open Volume/Snap Data Volume/Snap Data Pool Volume/Thin Provisioning Volume/MVV Volume) in another window.



Mainframe#	Open#	Name	Status	Volume	Type	Encryption	Capacity (MB)	RAID Group	TPP
-	0x000 vol0000	Available	Open	-	-	-	2000	0x000-raid_000	-
-	0x001 vol0001	Available	Open	-	-	-	2000	0x000-raid_000	-
-	0x002 vol0002	Available	Open	-	-	-	2000	0x000-raid_000	-
-	0x003 vol0003	Available	Open	-	-	-	2000	0x000-raid_000	-
-	0x004 vol0004	Available	Open	-	-	-	2000	0x000-raid_000	-
-	0x005 vol0005	Available	Open	-	-	-	2000	0x000-raid_000	-
-	0x006 vol0006	Available	Open	-	-	-	2000	0x002-raid_002	-
-	0x007 vol0007	Available	Open	-	-	-	2000	0x002-raid_002	-
-	0x008 vol0008	Available	TPV	-	-	-	1024	-	0x001 pool_01
-	0x009 vol0009	Available	Open	-	-	-	2000	0x002-raid_002	-

**4** After making all changes, click the [Set] button.

Open Volume List

**LUN Mapping Operations**

☒ Set Range: From LUN 0x000 To LUN 0x1FF  
 Start Volume# 0x0000

☐ Delete Range: From LUN 0x To LUN 0x

☐ Delete ALL: Delete all LUN-Volume# mapping for this Affinity Group

Execute

Affinity Group Name : 0x000

Affinity Group# 0x000							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036

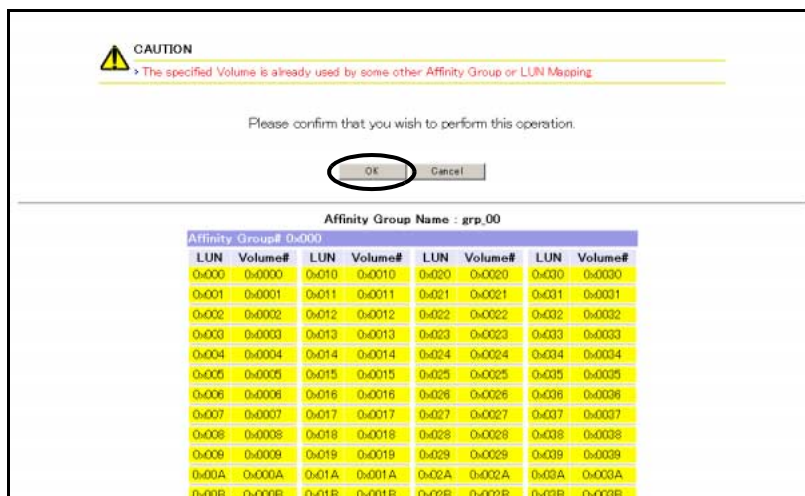
The screen that will be displayed varies according to the status of Mapping for the specified volume.

- When the specified volume is already used by another Affinity Group or LUN Mapping:
  - The [Set Affinity Group (Check LUN Mapping Setting)] screen appears.
  - Volumes already used by another Affinity Group or LUN Mapping are displayed with a yellow background.
  - Move on to [Step 5](#).
- When the specified volume is not used by any Affinity Group or LUN Mapping:
  - The [Set Affinity Group (Initial)] screen appears.
  - The new state of the [Affinity Group List] is shown. (Not yet updated in the ETERNUS DX400/DX8000 series.)
  - The Affinity Group where the LUN Mapping information is added/changed is displayed with a yellow background.
  - The Affinity Group where all the LUN Mapping information has been deleted is displayed with a gray background.

Repeat Steps 2 to 4 to edit more Affinity Group(s).

After all the Affinity Groups edits have been made, move on to [Step 6](#).

**5** Check the Mapping status for target volumes, and click the [OK] button.



→ The [Set Affinity Group (Initial)] screen appears.

The [Affinity Group List] is updated in the Affinity Group where the LUN Mapping information is added/changed/deleted (Not yet updated in the ETERNUS DX400/DX8000 series.)

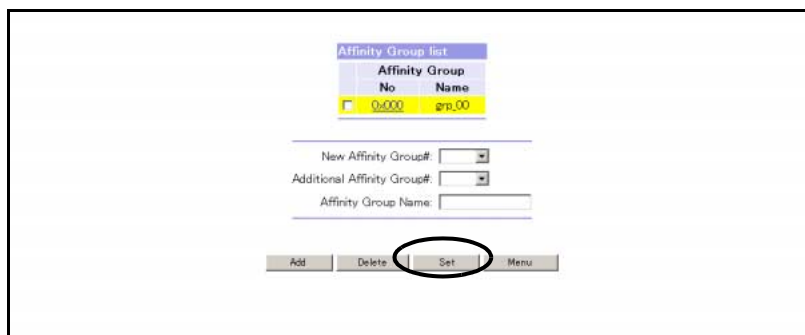
The Affinity Group where the LUN Mapping information is added/changed is displayed with a yellow background.

The Affinity Group where all the LUN Mapping information has been deleted is displayed with a gray background.

Repeat Steps 2 to 4 to edit more Affinity Group(s).

After all the Affinity Groups edits have been made, move on to [Step 6](#).

**6** Click the [Set] button to update in the ETERNUS DX400/DX8000 series.



→ The [Set Affinity Group (Check Setting)] screen appears.

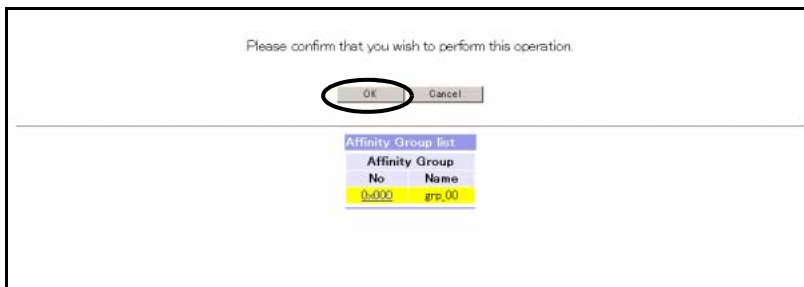


Note

- If there is no valid Mapping information, the background of the Affinity Group is displayed in gray. Clicking the [Set] button deletes the Affinity Group.
- If you click the [Affinity Group No.] link in the Affinity Group List, the LUN Mapping List of the Affinity Group No. is displayed in another window.

Affinity Group# 0x000		Affinity Group# 0x010		Affinity Group# 0x020		Affinity Group# 0x030	
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036
0x007	0x0007	0x017	0x0017	0x027	0x0027	0x037	0x0037
0x008	0x0008	0x018	0x0018	0x028	0x0028	0x038	0x0038
0x009	0x0009	0x019	0x0019	0x029	0x0029	0x039	0x0039
0x00A	0x000A	0x01A	0x001A	0x02A	0x002A	0x03A	0x003A
0x00B	0x000B	0x01B	0x001B	0x02B	0x002B	0x03B	0x003B
0x00C	0x000C	0x01C	0x001C	0x02C	0x002C	0x03C	0x003C
0x00D	0x000D	0x01D	0x001D	0x02D	0x002D	0x03D	0x003D
0x00E	0x000E	0x01E	0x001E	0x02E	0x002E	0x03E	0x003E
0x00F	0x000F	0x01F	0x001F	0x02F	0x002F	0x03F	0x003F
11N	Volume#	11N	Volume#	11N	Volume#	11N	Volume#

7 Click the [OK] button.



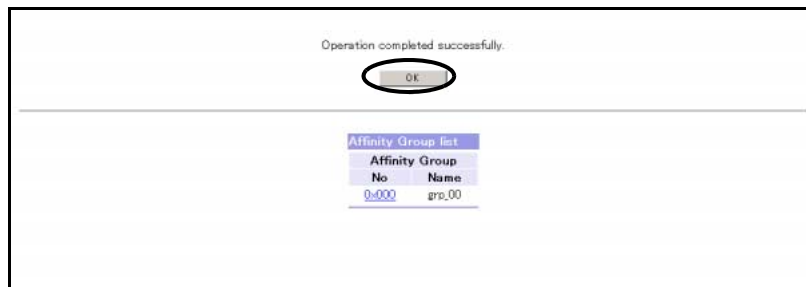
→ The [Set Affinity Group (Updating Configuration Information)] screen appears. After the process is successfully completed, the [Set Affinity Group (Setting Result)] screen appears.



Caution

The Affinity Group which has no validated Mapping information is deleted. The Affinity Group to be deleted is displayed with a gray background in the [Affinity Group List] field. Note that it is NOT displayed in the [Affinity Groups to be Deleted] field.

**8** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 5.4.4.3 Delete Affinity Group

**Caution**

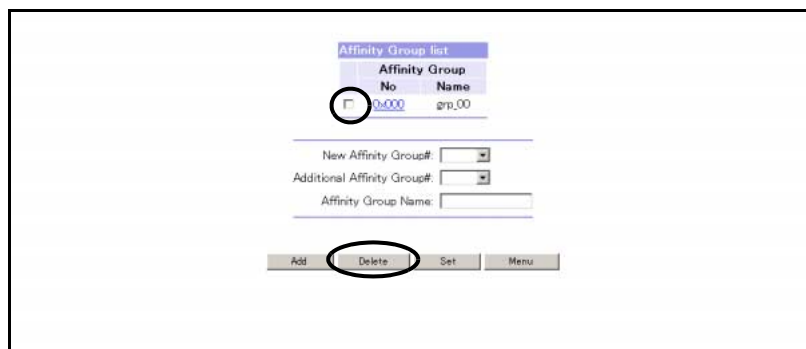


Before deleting an Affinity Group during operation, delete the Host-Affinity setting of the Affinity Group using the [Allocate Host-Affinity Group] function.

This section explains procedures to delete Affinity Groups.

#### Procedure

- 1** Click [Set Affinity Group] under the Host Interface Management in the [Configuration] menu.  
 → The [Set Affinity Group (Initial)] screen appears.
- 2** Select the checkbox(es) for the Affinity Group(s) to be deleted (multiple selections can be made), and click the [Delete] button.



→ The [Set Affinity Group (Initial)] screen appears with the selected Affinity Groups deleted (Not yet deleted in the ETERNUS DX400/DX8000 series).

**Caution** 

When the [Delete] button is clicked without selecting a target Affinity Group to be deleted, an error screen appears.

**Note** 

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, and when logged on using a Total Administrator account, the [Resource Domain to display] list box and the [Refine] button are displayed. Select the Resource Domain for the Affinity Group to be displayed from the [Resource Domain to display] list box and click the [Refine] button to display the Affinity Groups that are assigned to the selected Resource Domain. After refining the displayed Affinity Groups, the [Resource Domain] field in the [Affinity Group List] is not displayed.

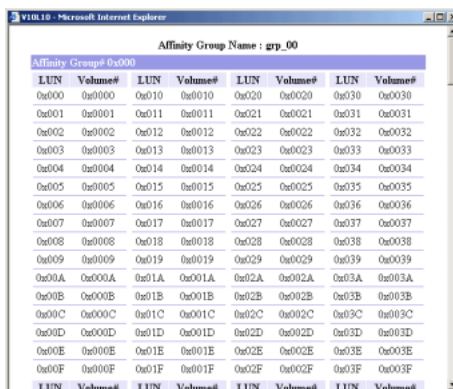
**3** Click the [Set] button and delete the selected Affinity Group.



→ The [Set Affinity Group (Check Setting)] screen appears.

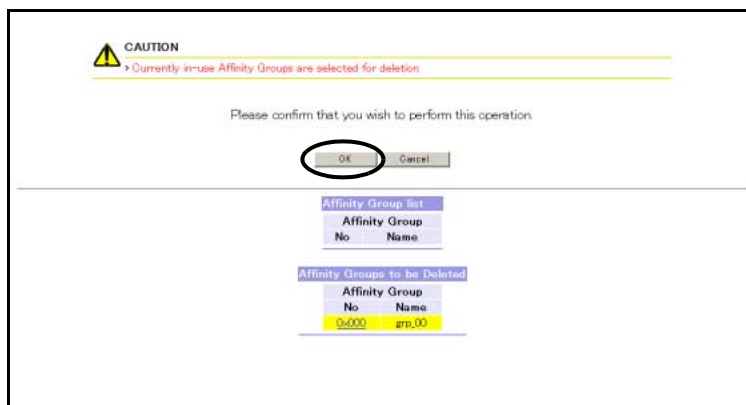
**Note** 

If you click the [Affinity Group No.] link in the Affinity Group List, the LUN Mapping List of the Affinity Group No. is displayed in another window.



LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036
0x007	0x0007	0x017	0x0017	0x027	0x0027	0x037	0x0037
0x008	0x0008	0x018	0x0018	0x028	0x0028	0x038	0x0038
0x009	0x0009	0x019	0x0019	0x029	0x0029	0x039	0x0039
0x00A	0x000A	0x01A	0x001A	0x02A	0x002A	0x03A	0x003A
0x00B	0x000B	0x01B	0x001B	0x02B	0x002B	0x03B	0x003B
0x00C	0x000C	0x01C	0x001C	0x02C	0x002C	0x03C	0x003C
0x00D	0x000D	0x01D	0x001D	0x02D	0x002D	0x03D	0x003D
0x00E	0x000E	0x01E	0x001E	0x02E	0x002E	0x03E	0x003E
0x00F	0x000F	0x01F	0x001F	0x02F	0x002F	0x03F	0x003F

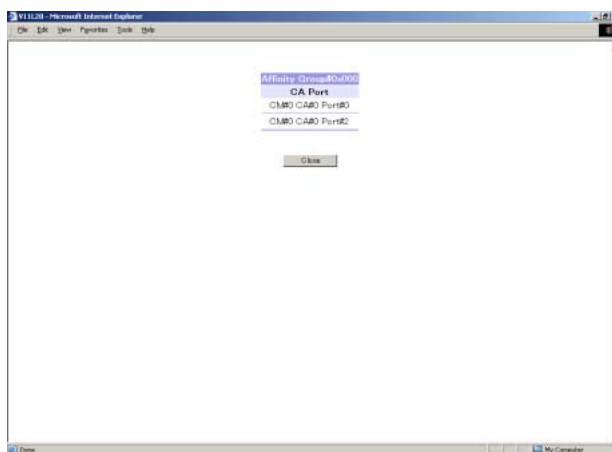
**4** Click the [OK] button.



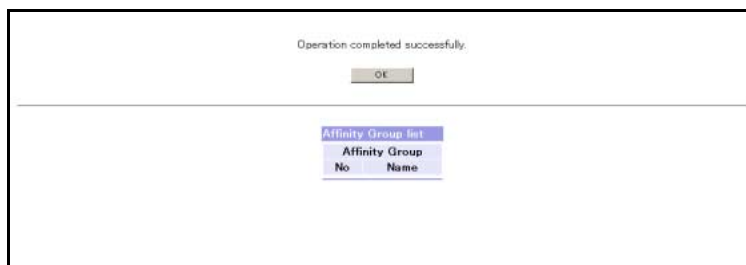
→ The [Set Affinity Group (Updating Configuration Information)] screen is displayed. After the process is successfully completed, the [Set Affinity Group (Setting Result)] screen appears.

**Note**

Affinity Groups to be deleted are displayed in the [Affinity Groups to be Deleted] field. Affinity Groups with Host-Affinity Group settings are displayed with a yellow background. If you click the [Affinity Group No.] link, the CA Port List that references the Affinity Groups is displayed in another window.



**5** Click the [OK] button.



→ Returns to the [Menu] screen.

**End of procedure**

## 5.4.5 Allocate Host-Affinity Group

On this screen, add or delete Host-Affinity Group related to the Host-Affinity function without stopping ETERNUS DX400/DX8000 series operations.

The Host-Affinity Group setting is used to associate the Host World Wide Name (WWN) or iSCSI Host registered in the ETERNUS DX400/DX8000 series with Affinity Groups. Only hosts that have Host World Wide Name or iSCSI Host registered to the ETERNUS DX400/DX8000 series by the Host-Affinity Group setting can access specific Affinity Groups associated with the hosts. Set Affinity Group only when hosts and the ETERNUS DX400/DX8000 series are connected via FC-CA or iSCSI-CA.

The maximum numbers of WWNs, iSCSI Hosts, Affinity Groups, and Host-Affinity Group settings which can be registered vary depending on each model. The following shows the number which can be set for each model.

- The number of WWNs/iSCSI Hosts/Affinity Groups/Host-Affinity Group settings which can be registered

Model	Number of WWNs	Number of iSCSI Hosts	Number of Affinity Groups (in the system)	Number of Host-Affinity Group settings (per port)
ETERNUS DX410	256	256	256	64
ETERNUS DX440	256	256	256	64
ETERNUS DX8100	256	256	256	64
ETERNUS DX8400	1024	1024	512	64
ETERNUS DX8700	1024	1024	512	64

When setting Host-Affinity Groups, the number of LUNs that can be accessed from the host varies depending on the host. The following shows the number of LUNs that can be accessed from the host.

- Number of LUN that can access

Host specific mode of Host Response	Affinity group	
	Not connected	Connected
HP-UX Mode (SCC)	512 LUNs (0x000 – 0x1FF)	1024 LUNs (0x000 – 0x3FF)
AIX Mode (Extended Address) Linux/NR1000V Mode (Extended Address)	512 LUNs (0x000 – 0x1FF)	-
Others	256 LUNs (0x000 – 0x0FF)	-

**Caution**



- When deleting the Host-Affinity Group during operation, make sure to stop the host access related to the Host-Affinity Group to be deleted. To add a new Host-Affinity Group, it is not necessary to stop the host access.
  - When copying Host Affinity Group information to an active CA, make sure to stop host access to the copy destination CA Port. When copying Host Affinity Group information to a newly added CA, it is not necessary to stop host access.
  - The Host-Affinity function can be used if the [Affinity Mode] of the target FC-CA Port or iSCSI-CA port is [ON (Enabled)].
  - "Connected Affinity Group" can be linked only when the host specific mode of the Host Response is "HP-UX Mode (SCC)".
  - When the host specific mode of the Host Response is "Normal Mode (Default)", "AIX Mode", or "VMware Mode", the number of LUNs that can be accessed from the host is 256. Even if you map 257 or more LUNs (LUN: 0x100-) using the [Set Affinity Group] function, the host cannot access them. The 257th or higher LUNs (LUN: 0x100-) cannot be displayed by the [Allocate Host-Affinity Group] function.
  - When Resource Domains are registered in the ETERNUS DX400/ DX8000 series, the host information and Affinity Groups that can be set for the Host-Affinity Groups differ depending on the current user account.
    - When logged on using a Total Administrator account, all the host information and Affinity Groups that are assigned to the Resource Domains can be set to the Host-Affinity Groups.
    - When logged on using a Resource Domain Administrator account, only the host information and Affinity Groups that are assigned to the relevant Resource Domain and the Shared Resource, can be set to the Host-Affinity Groups.
  - In the following cases, this operation cannot be performed, and a message to that effect appears.
    - When no Affinity Groups are registered (\*1)
    - When there is no CA port where the Host-Affinity Group is enabled
    - When no host corresponding to the CA port where Host-Affinity Group is enabled, is registered (\*1)
- \*1: When logged on using a Resource Domain Administrator account, and no Affinity Groups or no hosts are assigned to the relevant Resource Domain, the [Allocate Host-Affinity Group] function cannot be used.



Note

- When a host and the ETERNUS DX400/DX8000 series are connected via FC-CA or iSCSI-CA, there are two ways for a host to recognize Logical Volumes in the ETERNUS DX400/DX8000 series. One is [Set LUN Mapping], and the other is the Host-Affinity function, which relies on [Set Host World Wide Name(s)]/[Set iSCSI Host], [Set Affinity Group] and [Allocate Host-Affinity Group]. [Affinity Mode] in [Set CA Parameters] for each FC-CA Port or iSCSI-CA Port determines which function to use. If [Affinity Mode] is [ON (Enabled)], the Host-Affinity function is enabled, whereas [Set LUN Mapping] is enabled if [Affinity Mode] is [OFF (Disabled)].
- The Host-Affinity function is a device security function for open system servers which is supported by Fibre Channel CAs (FC-CA) and iSCSI-CAs. To use the Host-Affinity function, [Set Host World Wide Name(s)]/[Set Host iSCSI], [Set Affinity Group], and [Allocate Host-Affinity Group] are required.
- "FC8G" indicates FC with a maximum transfer speed of 8Gbps.

The following explains the setting procedures of Host Affinity Group.  
The following settings are available.

- [Add Host-Affinity Group](#)
- [Delete Host-Affinity Group](#)
- [Copy Host-Affinity Group](#)

These procedures are explained in the following sections.

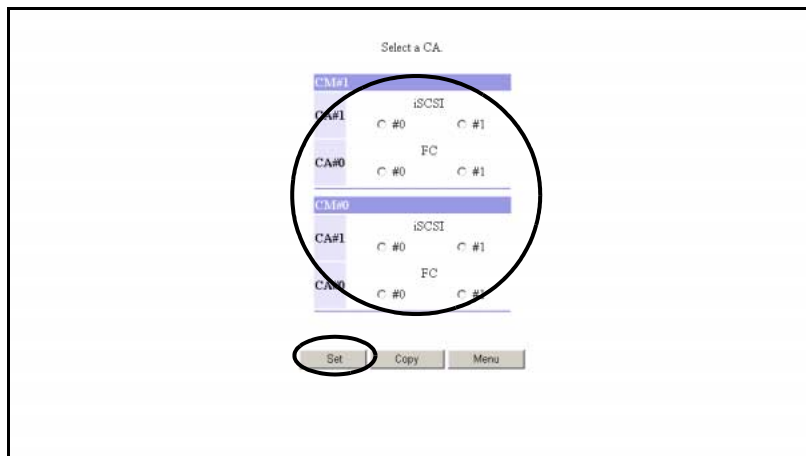
#### 5.4.5.1 Add Host-Affinity Group

This section explains procedures to add a Host-Affinity Group.

##### Procedure

- 1 Click [Allocate Host-Affinity Group] under the Host Interface Management in the [Configuration] menu.  
→ The [Allocate Host-Affinity Group (Initial)] screen appears.

- 2** Select the CA port to set the Host-Affinity Group, and click the [Set] button.



→ The [Allocate Host-Affinity Group (Set)] screen appears.  
 The displayed screen varies depending on each CA type.

**Caution**

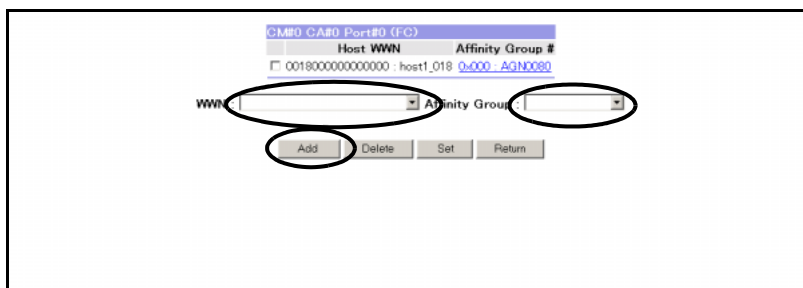


When the [Set] button is clicked without selecting a CA Port, an error screen appears.

- 3** Specify the following and click the [Add] button.  
 Repeat these operations to add more Host-Affinity Groups.

■ For FC-CA

- (1) Select the Resource Domain from the list box. (\*1)  
 (2) Select the WWN and the Affinity Group information to be linked as an Host-Affinity Group from the list box of [WWN] and [Affinity Group] respectively.



■ For iSCSI-CA

(1) Select the Resource Domain from the list box. (\*1)

(2) Select the iSCSI Host and the Affinity Group information to be linked as an Host-Affinity Group from the list box of [iSCSI Host] and [Affinity Group] respectively.

\*1: The "Resource Domain" item is displayed when Resource Domains are registered in the ETERNUS DX400/DX8000 series, and when logged on using a Total Administrator account. When selecting a Resource Domain, the host information and the Affinity Group information that are assigned to the relevant Resource Domain and the host information and the Affinity Group information for the Shared Resource are only displayed for each list box. The [Resource Domain] list box is used to refine the host information and Affinity Group information. If a Resource Domain is selected after specifying the host information and the Affinity Group information, the specified host information and Affinity Group information will be returned to its initial state (not selected).

Host Table #	Name	IP Address	Affinity Group #
0030	host2_0030	192.168.1.255	0-005_AGN0085
0031	host2_0031	192.168.1.2	0-006_AGN0086
0032	host2_0032	192.168.1.3	0-007_AGN0087

iSCSI Host: [Dropdown] Affinity Group: [Dropdown]

[Add] [Delete] [Set] [Return]

→ The [Allocate Host-Affinity Group (Set)] screen appears with the selected Host-Affinity Group added (Not added in the ETERNUS DX400/DX8000 series yet). The Host-Affinity Group to be added is displayed with a yellow background.

**Caution**

When clicking the [Add] button in the following conditions, an error screen appears.

- No designated items are selected
- An Additional Affinity Group is selected when the host specific mode of the Host Response that is set for the Host World Wide Name(s) or iSCSI Host is not "HP-UX Mode (SCC)"
- The Resource Domain to which the Host World Wide Name or iSCSI Host is assigned and the Resource Domain to which the Affinity Group is assigned do not match

Note that when a Host World Wide Name or iSCSI Host is assigned to a Resource Domain and the Affinity Group is a Shared Resource, or when the Host World Wide Name or iSCSI Host is assigned to a Shared Resource and the Affinity Group is assigned to a Resource Domain, no errors occur and the Host-Affinity Group can be added.



Note

The Affinity Group LUN Mapping List is displayed by clicking the [Affinity Group #] link.

Affinity Group Name : AGN0080							
Affinity Group# 0x000							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036
0x007	0x0007	0x017	0x0017	0x027	0x0027	0x037	0x0037
0x008	0x0008	0x018	0x0018	0x028	0x0028	0x038	0x0038
0x009	0x0009	0x019	0x0019	0x029	0x0029	0x039	0x0039
0x00A	0x000A	0x01A	0x001A	0x02A	0x002A	0x03A	0x003A
0x00B	0x000B	0x01B	0x001B	0x02B	0x002B	0x03B	0x003B
0x00C	0x000C	0x01C	0x001C	0x02C	0x002C	0x03C	0x003C
0x00D	0x000D	0x01D	0x001D	0x02D	0x002D	0x03D	0x003D
0x00E	0x000E	0x01E	0x001E	0x02E	0x002E	0x03E	0x003E
0x00F	0x000F	0x01F	0x001F	0x02F	0x002F	0x03F	0x003F
TUN	Volume#	TUN	Volume#	TUN	Volume#	TUN	Volume#

- Click the [Set] button to update the setting in the ETERNUS DX400/DX8000 series.

CMR0 CA#0 Port#0 (FC)

Host WWN	Affinity Group #
0018000000000000 : host1_018	0x000 : AGN0080
0011000000000000 : host1_011	0x001 : AGN0081

WWN :  Affinity Group :

Add Delete **Set** Return

→ The [Allocate Host-Affinity Group (Check Setting)] screen appears.  
The Host-Affinity Group to be added is displayed with a yellow background.

- Click the [OK] button.

Please confirm that you wish to perform this operation.

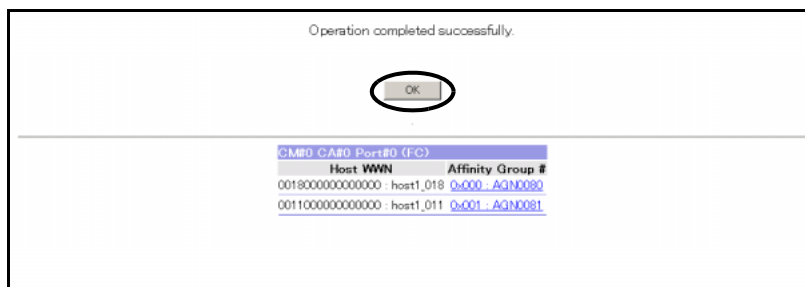
OK Cancel

CMR0 CA#0 Port#0 (FC)

Host WWN	Affinity Group #
0018000000000000 : host1_018	0x000 : AGN0080
0011000000000000 : host1_011	0x001 : AGN0081

→ Displays the [Allocate Host-Affinity Group (Updating Configuration Information)] screen. After the process is successfully complete, the [Allocate Host-Affinity Group (Setting Result)] screen appears.

**6** Click the [OK] button.



→ Returns to the [Allocate Host-Affinity Group (Initial)] screen.

End of procedure

### 5.4.5.2 Delete Host-Affinity Group

This section explains procedures to delete the Host-Affinity Group.

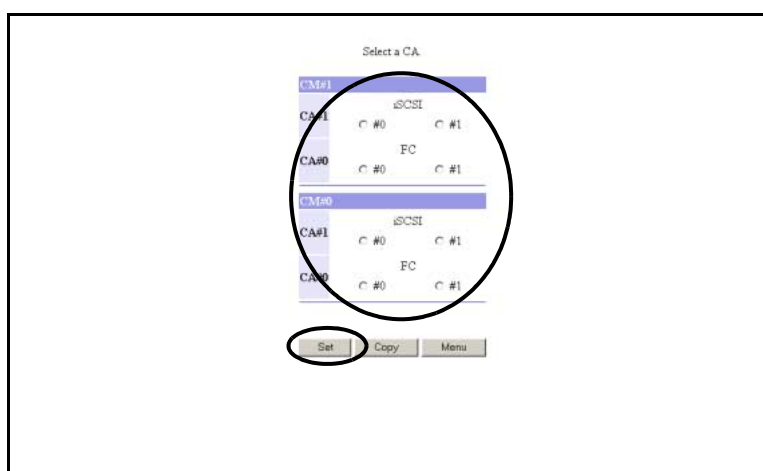
**Caution**



Deleting a Host-Affinity Group deletes the link information between the Host World Wide Name(s) and Affinity Group or the link information between the iSCSI Host and Affinity Group. When deleting the Host-Affinity Group during the operation, make sure to stop the host access related to the Host-Affinity Group to be deleted.

#### Procedure

- 1 Click [Allocate Host-Affinity Group] under the Host Interface Management in the [Configuration] menu.  
 → The [Allocate Host-Affinity Group (Initial)] screen appears.
- 2 Select the CA port to delete the Host-Affinity Group, and click the [Set] button.



→ The [Allocate Host-Affinity Group (Set)] screen appears.

The displayed screen varies depending on each CA type.

- For FC-CA

Host WWN	Affinity Group #
0018000000000000 : host1_018	0x000 - AGN0080
0011000000000000 : host1_011	0x001 - AGN0081
0012000000000000 : host1_012	0x002 - AGN0082

WWN :  Affinity Group :

Add Delete Set Return

- For iSCSI-CA

Host Table #	Name	IP Address	Affinity Group #
0030	host2_0030	192.168.1.255	0x005 - AGN0085
0031	host2_0031	192.168.1.2	0x006 - AGN0086
0032	host2_0032	192.168.1.3	0x007 - AGN0087

iSCSI Host :  Affinity Group :

Add Delete Set Return

**Caution**

When the [Set] button is clicked without selecting a CA Port, an error screen appears.

- 3 Select the checkbox for the Host Affinity Group to be deleted (multiple selections can be made), and click the [Delete] button.

Host WWN	Affinity Group #
0018000000000000 : host1_018	0x000 - AGN0080
0011000000000000 : host1_011	0x001 - AGN0081
0012000000000000 : host1_012	0x002 - AGN0082

WWN :  Affinity Group :

Add Delete Set Return

→ The [Allocate Host-Affinity Group (Set)] screen appears with the selected Host-Affinity Group deleted (Not deleted from the ETERNUS DX400/DX8000 series yet).

**Caution**

When the [Delete] button is clicked without selecting the target to be deleted, an error screen appears.



Note

The Affinity Group LUN Mapping List is displayed by clicking the [Affinity Group #] link.

- 4 Click the [Set] button to update the setting in the ETERNUS DX400/DX8000 series.

→ The [Allocate Host-Affinity Group (Check Setting)] screen appears.



Note

The Affinity Group LUN Mapping List is displayed by clicking the [Affinity Group #] link.

Affinity Group Name : AGN0080							
Affinity Group# 0x000							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036
0x007	0x0007	0x017	0x0017	0x027	0x0027	0x037	0x0037
0x008	0x0008	0x018	0x0018	0x028	0x0028	0x038	0x0038
0x009	0x0009	0x019	0x0019	0x029	0x0029	0x039	0x0039
0x00A	0x000A	0x01A	0x001A	0x02A	0x002A	0x03A	0x003A
0x00B	0x000B	0x01B	0x001B	0x02B	0x002B	0x03B	0x003B
0x00C	0x000C	0x01C	0x001C	0x02C	0x002C	0x03C	0x003C
0x00D	0x000D	0x01D	0x001D	0x02D	0x002D	0x03D	0x003D
0x00E	0x000E	0x01E	0x001E	0x02E	0x002E	0x03E	0x003E
0x00F	0x000F	0x01F	0x001F	0x02F	0x002F	0x03F	0x003F
T11N	Volume#	T11N	Volume#	T11N	Volume#	T11N	Volume#

- 5 Click the [OK] button.

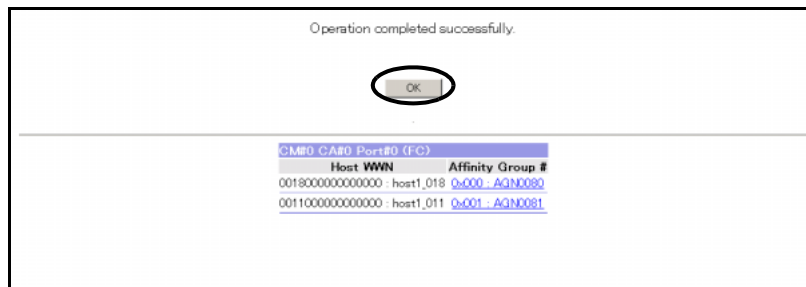
→ Displays the [Allocate Host-Affinity Group (Updating Configuration Information)] screen. After the process is successfully completed, the [Allocate Host-Affinity Group (Setting Result)] screen appears.



Note

The Host-Affinity Groups that are to be deleted are displayed in the [Host-Affinity Groups to be Deleted] list.

**6** Click the [OK] button.



→ Returns to the [Allocate Host-Affinity Group (Initial)] screen.

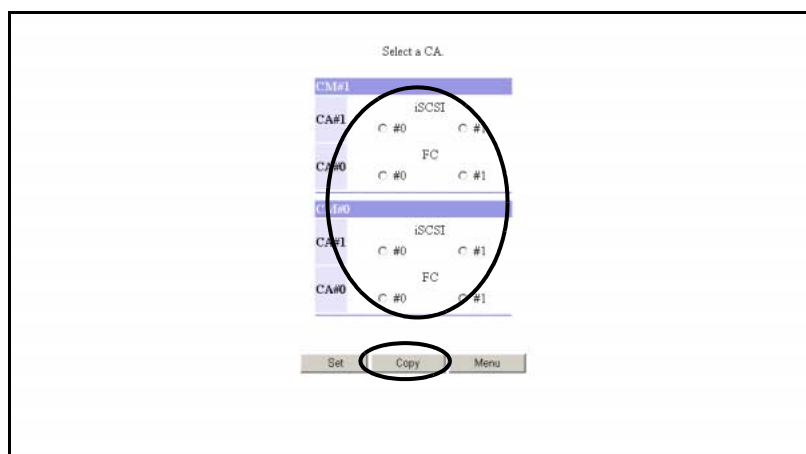
End of procedure

### 5.4.5.3 Copy Host-Affinity Group

This section explains procedures to copy a Host-Affinity Group.

#### Procedure

- 1 Click [Allocate Host-Affinity Group] under the Host Interface Management in the [Configuration] menu.  
 → The [Allocate Host-Affinity Group (Initial)] screen appears.
- 2 Select the CA (copy source) from which the Host Affinity Group is copied, and click the [Copy] button.



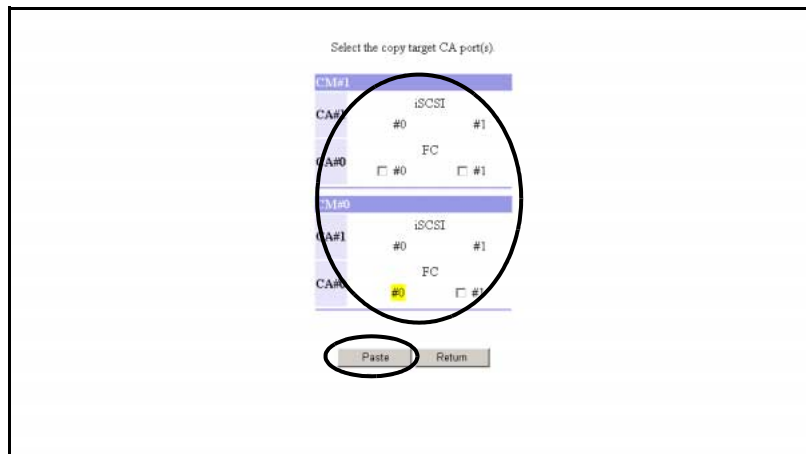
→ The [Allocate Host-Affinity Group (Select Copy Destination CA port)] screen appears.

**Caution**



- The Host-Affinity function can be used if the [Affinity Mode] of the target FC-CA Port or iSCSI-CA Port is [ON (Enabled)]. A checkbox is displayed only on the FC-CA or iSCSI-CA Ports for which [Affinity Mode] is [ON (Enabled)] as a copy destination.
- When the [Copy] button is clicked without selecting a CA Port, an error screen appears.

- 3** Select copy destination CA Port(s) (multiple selections can be made), and click the [Paste] button.



The copy source CA Port is displayed with a yellow background.  
→ The [Allocate Host-Affinity Group (Copy Check)] screen appears.

**Caution**



- When the [Paste] button is clicked without selecting a copy destination CA port, an error screen appears.
- When using the copy function, the copy destination CA and the copy source CA must be the same type.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, copy results differ depending on the current user account.
  - When logged on using a Total Administrator account, the ETERNUS DX400/DX8000 series deletes all the Host-Affinity Groups in the copy destination CA port, and copies all the Host-Affinity Groups in the copy source CA port to the copy destination.

- When logged on using a Resource Domain Administrator account, the ETERNUS DX400/DX8000 series deletes the Host-Affinity Groups, which are configured with the hosts and Affinity Groups in the relevant Resource Domain, in the copy destination CA port. The ETERNUS DX400/DX8000 series will then copy the Host-Affinity Groups, which are configured with hosts and Affinity Groups in the relevant Resource Domain, in the copy source CA port to the copy destination. When the number of Host-Affinity Groups in the copy destination CA port exceeds 64 if copy is performed, the checkbox is not displayed for the relevant copy destination CA port.
- When logged on using a Resource Domain Administrator account, if the same host information exists in the copy source and destination CA ports, and if the host information is allocated to an Affinity Group that is assigned to a different Resource Domain from the Resource Domain to which the current user account is allocated, the checkbox is not displayed for the relevant copy destination CA port.

**4** Click the [OK] button.



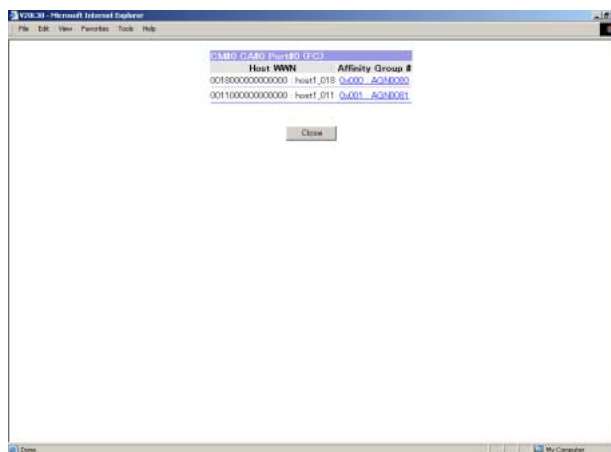
→ Displays the [Allocate Host-Affinity Group (Copy Progress Check)] screen. After the process is successfully complete, the [Allocate Host-Affinity Group (Copy Result)] screen appears.



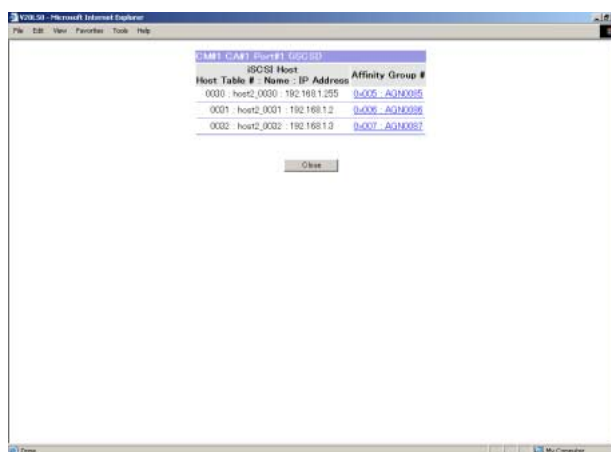
# Note

Clicking the [Source CA] link or [Target CA] link displays the Host-Affinity Group List of the CA port in another window.  
The displayed screen varies depending on each CA type.

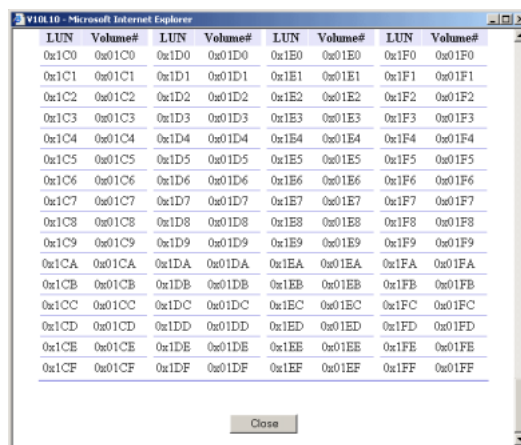
- For FC-CA



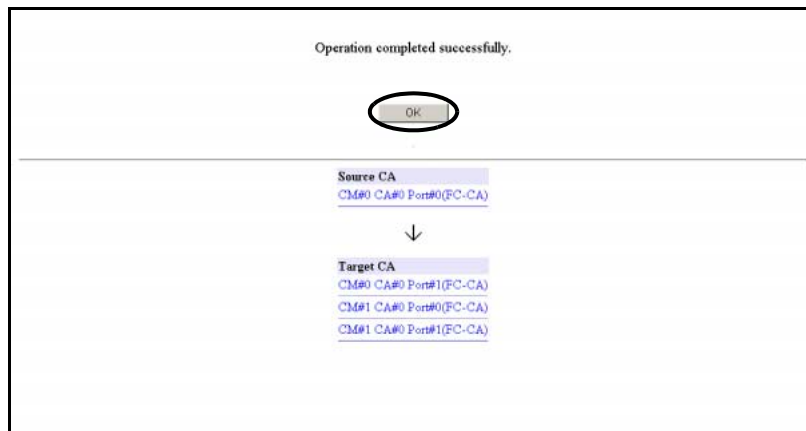
- For iSCSI-CA



By clicking [Affinity Group #] link on the displayed screen, the Affinity Group LUN Mapping List is displayed in another window.



**5** Click the [OK] button.



→ Returns to the [Allocate Host-Affinity Group (Initial)] screen.

**End of procedure**

## 5.4.6 Set LUN Mapping

On this screen, add/change/delete mapping information for the Logical Unit Number (LUN) recognized by hosts, and the Logical Volume number used in the ETERNUS DX400/DX8000 series, without stopping operations. Relying on the mapping between the two types of numbers, hosts can access the Logical Volumes in the ETERNUS DX400/DX8000 series.

Set LUN Mapping only when hosts and the ETERNUS DX400/DX8000 series are connected via FC-CA or iSCSI-CA.

**Caution**

- Make sure to stop host access to the FC-CA Port or iSCSI-CA Port when its LUN Mapping information is changed/deleted during operation. When adding a new LUN Mapping, it is not necessary to stop host access.
- When copying LUN Mapping information to an active FC-CA or iSCSI-CA, make sure to stop host access to the copy destination FC-CA or iSCSI-CA port. When copying LUN Mapping information to a newly added FC-CA or iSCSI-CA, it is not necessary to stop host access.
- [Set LUN Mapping] is available when the [Affinity Mode] of the target FC-CA Port or iSCSI-CA Port is [OFF (Disabled)].
- Mapping to a "Work Volume" during RAID Migration is not allowed. The operating status (Work Volume information) of Migration can be checked by the [Progress of RAID Migration] function. "Work Volume" is a temporary volume created for Migration operation.
- Mapping to a Snap Data Pool Volume is not allowed.

- If the Host Specific mode of the FC-CA Port or iSCSI-CA Port Host Response to which LUN mappings are allocated is changed from a mode that allows up to 512 LUNs (0x000 – 0x1FF) (\*1) to a mode that only allows up to 256 LUNs (0x000 – 0x0FF) (\*2), the surplus LUN mappings (0x100 – 0x1FF) are automatically deleted.
  - \*1: AIX Mode (Extended Address), HP-UX Mode (SCC), or Linux/NR1000V Mode (Extended Address)
  - \*2: Normal Mode (Default) or AIX Mode
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, volumes that can be mapped differ depending on the current user account.
  - When logged on using a Total Administrator account, all the volumes that are assigned to Resource Domains can be mapped.
  - When logged on using a Resource Domain Administrator account, only the volumes that are assigned to the relevant Resource Domain, and only the volumes that are assigned to the Shared Resource, can be mapped.



Note

When a host and the ETERNUS DX400/DX8000 series are connected via FC-CA or iSCSI-CA, there are two ways for a host to recognize Logical Volumes in the ETERNUS DX400/DX8000 series. One is [Set LUN Mapping], and the other is the Host-Affinity function, which relies on [Set Host World Wide Name(s)]/[Set iSCSI Host], [Set Affinity Group] and [Allocate Host-Affinity Group]. The [Affinity Mode] setting in [Set CA Parameters] determines which function to use for each FC-CA Port or iSCSI-CA Port. If the [Affinity Mode] is [ON (Enabled)], the Host-Affinity function is enabled, whereas if the [Affinity Mode] is [OFF (Disabled)], then [Set LUN Mapping] is enabled.

The following explains the LUN Mapping setting procedures.  
The following settings are available.

- [Add/Change/Delete LUN Mapping](#)
- [Copy LUN Mapping](#)

These procedures are explained in the following sections.

#### 5.4.6.1 Add/Change/Delete LUN Mapping

This section explains procedures to add/change/delete LUN Mapping.

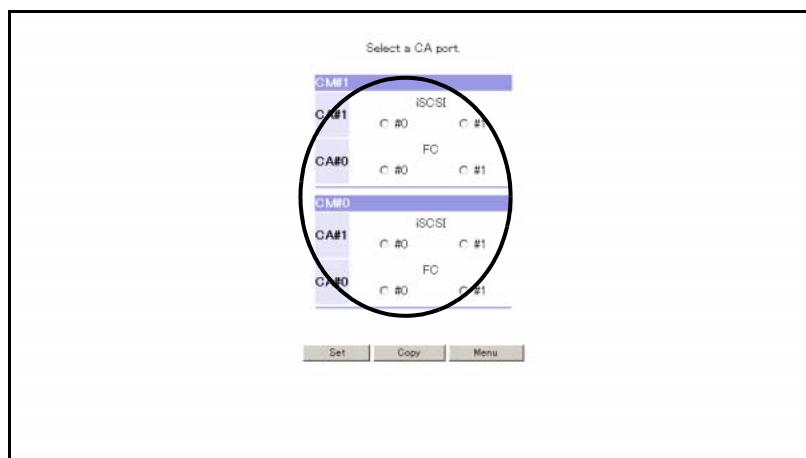
##### Procedure

- 1 Click [Set LUN Mapping] under the Host Interface Management in the [Configuration] menu.
  - The [Set LUN Mapping (Initial)] screen appears.

**Caution** 

- In the following cases, an error occurs and a message to that effect appears. Click [OK] button to return to the [Menu] screen.
  - When no Open Volume, Snap Data Volume, Thin Provisioning Volume, or MVV Volume is created in the ETERNUS DX400/DX8000 series
  - When no FC-CA or iSCSI-CA for which Host Affinity can be disabled is installed
- When an ETERNUS DX400/DX8000 series is busy, a message to that effect is displayed. Wait while processing.

- 2** Select the CA Port to add/delete/change LUN Mapping, and click the [Set] button.



→ The [Set LUN Mapping (Setting)] screen appears.

**Caution** 

When the [Set] button is clicked without selecting a CA Port, an error screen appears.

 **Note**

When the [Set] button is clicked without selecting a CA Port, an error screen appears.

### 3 Create LUN Mapping information.

#### ■ To set using [Set Range]

This creates LUN Mapping information for a sequential set of LUNs on the FC-CA Port or iSCSI-CA Port.

(1) Select the [Set Range] radio button.

(2) Select the first and last LUNs from the list box to create LUN Mapping information to sequential LUNs.

(3) Enter the starting Logical Volume number in the text box for multiple allocations.

(4) Click the [Execute] button to create LUN Mapping information consisting of LUNs and Logical Volume numbers in the lower part of the screen.

Open Volume List

LUN Mapping Operations

☒ Set Range: From LUN 0x 000 To LUN 0x 007  
 Start Volume# 0x 0000

☐ Delete Range: From LUN 0x To LUN 0x

☐ Delete ALL: Delete all LUN-Volume# mappings for this LUN Mapping

Execute

Set Return

CA#0 Port#0 (FC)							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x 0000	0x010	0x 0010	0x020	0x 0020	0x030	0x 0030
0x001	0x 0001	0x011	0x 0011	0x021	0x 0021	0x031	0x 0031
0x002	0x 0002	0x012	0x 0012	0x022	0x 0022	0x032	0x 0032
0x003	0x 0003	0x013	0x 0013	0x023	0x 0023	0x033	0x 0033
0x004	0x 0004	0x014	0x 0014	0x024	0x 0024	0x034	0x 0034
0x005	0x 0005	0x015	0x 0015	0x025	0x 0025	0x035	0x 0035
0x006	0x 0006	0x016	0x 0016	0x026	0x 0026	0x036	0x 0036
0x007	0x 0007	0x017	0x 0017	0x027	0x 0027	0x037	0x 0037

If there is already LUN Mapping information, it will be replaced by the LUN Mapping information specified in the above procedures.

#### ■ To add/change/delete manually

Enter the Open Volume number corresponding to the LUN, or delete the entered value, in the Volume# text box.

(1) Input directly or delete the Logical Volume number in [Volume#] in the lower part of the screen and update the LUN Mapping information which consists of LUNs and the Logical Volume numbers.

Open Volume List

LUN Mapping Operations

☒ Set Range: From LUN 0x 000 To LUN 0x 007  
 Start Volume# 0x 0000

☐ Delete Range: From LUN 0x To LUN 0x

☐ Delete ALL: Delete all LUN-Volume# mappings for this LUN Mapping

Execute

Set Return

CA#0 Port#0 (FC)							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x	0x010	0x	0x020	0x	0x030	0x
0x001	0x	0x011	0x	0x021	0x	0x031	0x
0x002	0x	0x012	0x	0x022	0x	0x032	0x
0x003	0x	0x013	0x	0x023	0x	0x033	0x
0x004	0x	0x014	0x	0x024	0x	0x034	0x
0x005	0x	0x015	0x	0x025	0x	0x035	0x
0x006	0x	0x016	0x	0x026	0x	0x036	0x
0x007	0x	0x017	0x	0x027	0x	0x037	0x

■ To delete using [Delete Range]

- (1) Select the [Delete Range] radio button.
- (2) Select the first and the last LUNs to delete LUN Mapping information from the sequential LUNs.
- (3) Clicking the [Execute] button deletes the specified LUN Mapping information from the CA Port displayed in the lower part of the screen (Not yet deleted in the ETERNUS DX400/DX8000 series).

Open Volume List

LUN Mapping Operations

☐ Set Range: From LUN 0x [ ] To LUN 0x [ ]  
 Start Volume# 0x [ ]

☒ Delete Range: From LUN 0x [ ] To LUN 0x [ ]

☐ Delete ALL: Delete all LUN-Volume# mappings for this LUN Mapping

CA#0 CA#0 Port#0 (FC)							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x [ ]	0x010	0x [ ]	0x020	0x [ ]	0x030	0x [ ]
0x001	0x [ ]	0x011	0x [ ]	0x021	0x [ ]	0x031	0x [ ]
0x002	0x [ ]	0x012	0x [ ]	0x022	0x [ ]	0x032	0x [ ]
0x003	0x [ ]	0x013	0x [ ]	0x023	0x [ ]	0x033	0x [ ]
0x004	0x [ ]	0x014	0x [ ]	0x024	0x [ ]	0x034	0x [ ]
0x005	0x [ ]	0x015	0x [ ]	0x025	0x [ ]	0x035	0x [ ]
0x006	0x [ ]	0x016	0x [ ]	0x026	0x [ ]	0x036	0x [ ]
0x007	0x [ ]	0x017	0x [ ]	0x027	0x [ ]	0x037	0x [ ]

■ To delete using [Delete ALL]

- (1) Select the [Delete ALL] radio button.
- (2) Click the [Execute] button to delete all the LUN Mapping information allocated to the CA Port which is selected on the [Set LUN Mapping (Initial)] screen (Not yet deleted in the ETERNUS DX400/DX8000 series).

Open Volume List

LUN Mapping Operations

☐ Set Range: From LUN 0x [ ] To LUN 0x [ ]  
 Start Volume# 0x [ ]

☐ Delete Range: From LUN 0x [ ] To LUN 0x [ ]

☒ Delete ALL: Delete all LUN-Volume# mappings for this LUN Mapping

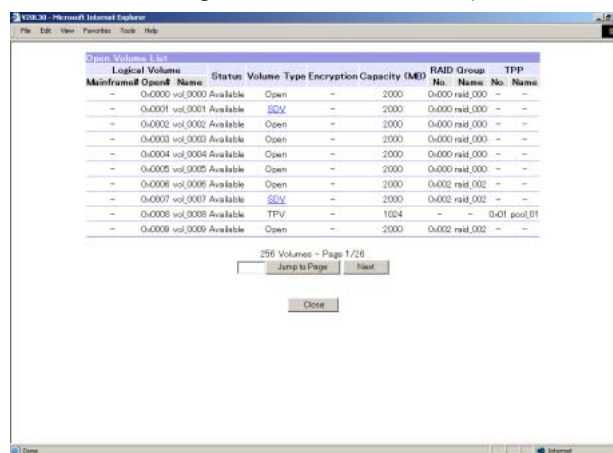
CA#0 CA#0 Port#0 (FC)							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x [ ]	0x010	0x [ ]	0x020	0x [ ]	0x030	0x [ ]
0x001	0x [ ]	0x011	0x [ ]	0x021	0x [ ]	0x031	0x [ ]
0x002	0x [ ]	0x012	0x [ ]	0x022	0x [ ]	0x032	0x [ ]
0x003	0x [ ]	0x013	0x [ ]	0x023	0x [ ]	0x033	0x [ ]
0x004	0x [ ]	0x014	0x [ ]	0x024	0x [ ]	0x034	0x [ ]
0x005	0x [ ]	0x015	0x [ ]	0x025	0x [ ]	0x035	0x [ ]
0x006	0x [ ]	0x016	0x [ ]	0x026	0x [ ]	0x036	0x [ ]
0x007	0x [ ]	0x017	0x [ ]	0x027	0x [ ]	0x037	0x [ ]

**Caution** 

- When operating manually (inputting directly), you do not need to select a radio button.
- When the [Execute] button is clicked in the following conditions, an error screen appears.
  - The radio buttons for Set Range, Delete Range, or Delete ALL, are not selected
  - Either the [From: LUN] or [To: LUN] is not selected in the Set Range or Delete Range, or both are not selected in the Set Range or Delete Range
  - Volume number is not specified for the [Start Volume#] in the Set Range
  - Incorrect characters are entered in the [Start Volume#] in the Set Range, or the specified value exceeds the maximum Logical Volume number of the Open Volumes for the [Start Volume#] in the Set Range
- When the [Set] button is clicked in the following conditions, an error screen appears.
  - Incorrect characters, an undefined Open Volume number, a Snap Data Pool Volume number, or the Temporary Volume number are entered for the Volume#, or the same Open Volume number is entered for multiple LUNs
  - A Work Volume number for an active RAID Migration is specified as the Volume#
  - A Work Volume number for an active TPV balancing is specified as the Volume#
  - Logged on using a Resource Domain Administrator account, and the volume numbers, which are not assigned to the relevant Resource Domain, are entered for the Volume#

 **Note**

Clicking the [Open Volume List] link displays the list of Open Volumes (Open Volume/Snap Data Volume/Snap Data Pool Volume/Thin Provisioning Volume/MVV Volume) in another window.



Logical Volume	Mainframe	Open#	Name	Status	Volume	Type	Encryption	Capacity (MB)	RAID Group	No.	Name	No.	Name	TPP
0x0000 vol.0000	Available	Open	-	-	2000	0x000 raid_000	-	-	-	-	-	-	-	-
0x0001 vol.0001	Available	SCV	-	-	2000	0x000 raid_000	-	-	-	-	-	-	-	-
0x0002 vol.0002	Available	Open	-	-	2000	0x000 raid_000	-	-	-	-	-	-	-	-
0x0003 vol.0003	Available	Open	-	-	2000	0x000 raid_000	-	-	-	-	-	-	-	-
0x0004 vol.0004	Available	Open	-	-	2000	0x000 raid_000	-	-	-	-	-	-	-	-
0x0005 vol.0005	Available	Open	-	-	2000	0x000 raid_000	-	-	-	-	-	-	-	-
0x0006 vol.0006	Available	Open	-	-	2000	0x002 raid_002	-	-	-	-	-	-	-	-
0x0007 vol.0007	Available	SCV	-	-	2000	0x002 raid_002	-	-	-	-	-	-	-	-
0x0008 vol.0008	Available	TPV	-	-	1024	-	-	0x01 pool_01	-	-	-	-	-	-
0x0009 vol.0009	Available	Open	-	-	2000	0x002 raid_002	-	-	-	-	-	-	-	-

**4** Click the [Set] button.

[Open Volume List](#)

**LUN Mapping Operations**

☒ Set Range: From LUN 0x [000] To LUN 0x [0FF]  
 Start Volume# 0x [0000]

☐ Delete Range: From LUN 0x [ ] To LUN 0x [ ]

☐ Delete ALL: Delete all LUN-Volume# mappings for this LUN Mapping

CMR0 CA#0 Port#0 (FC)							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x [0000]	0x010	0x [0010]	0x020	0x [0020]	0x030	0x [0030]
0x001	0x [0001]	0x011	0x [0011]	0x021	0x [0021]	0x031	0x [0031]
0x002	0x [0002]	0x012	0x [0012]	0x022	0x [0022]	0x032	0x [0032]
0x003	0x [0003]	0x013	0x [0013]	0x023	0x [0023]	0x033	0x [0033]
0x004	0x [0004]	0x014	0x [0014]	0x024	0x [0024]	0x034	0x [0034]
0x005	0x [0005]	0x015	0x [0015]	0x025	0x [0025]	0x035	0x [0035]
0x006	0x [0006]	0x016	0x [0016]	0x026	0x [0026]	0x036	0x [0036]
0x007	0x [0007]	0x017	0x [0017]	0x027	0x [0027]	0x037	0x [0037]

→ The [Set LUN Mapping (Check Setting)] screen appears.

**5** Click the [OK] button.

**CAUTION**

> The specified Volume is already used by some other Affinity Group or LUN Mapping.

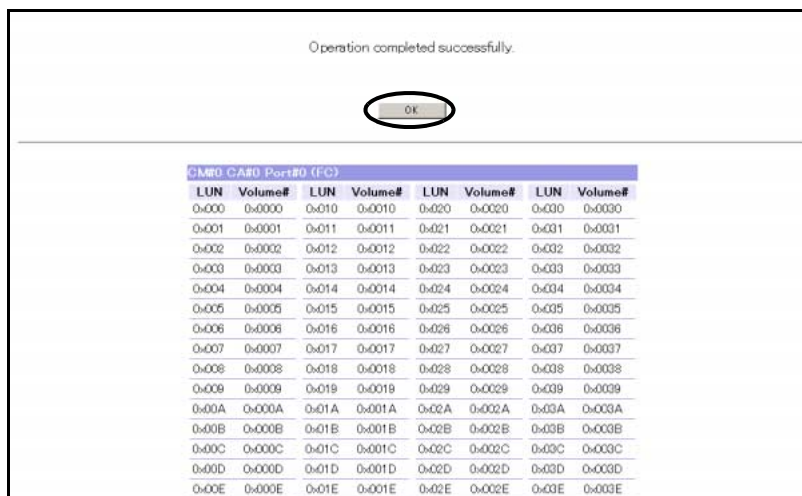
Please confirm that you wish to perform this operation.

CMR0 CA#0 Port#0 (FC)							
LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036
0x007	0x0007	0x017	0x0017	0x027	0x0027	0x037	0x0037
0x008	0x0008	0x018	0x0018	0x028	0x0028	0x038	0x0038
0x009	0x0009	0x019	0x0019	0x029	0x0029	0x039	0x0039
0x00A	0x000A	0x01A	0x001A	0x02A	0x002A	0x03A	0x003A
0x00B	0x000B	0x01B	0x001B	0x02B	0x002B	0x03B	0x003B
0x00C	0x000C	0x01C	0x001C	0x02C	0x002C	0x03C	0x003C

Volumes that are used by other Affinity groups or LUN Mapping are displayed with a yellow background.

→ The [Set LUN Mapping (Updating Configuration Information)] screen appears. After the process is successfully completed, the [Set LUN Mapping (Setting Result)] screen appears.

**6** Click the [OK] button.



→ Returns to the [Set LUN Mapping (Initial)] screen.

End of procedure

### 5.4.6.2 Copy LUN Mapping

This section explains procedures to copy LUN Mapping.

#### Procedure

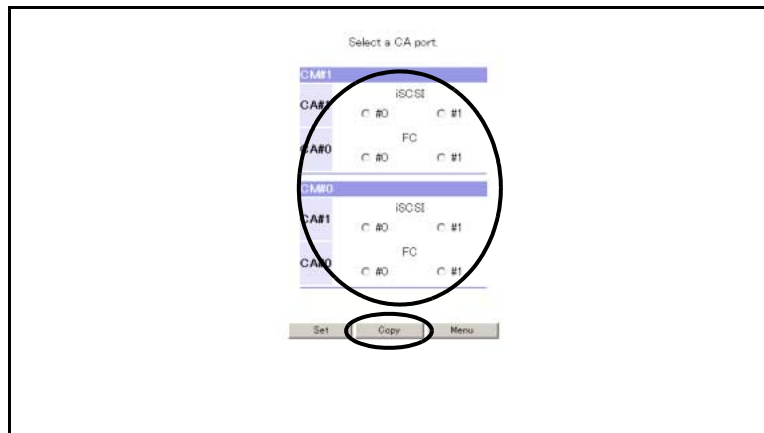
- 1 Click [Set LUN Mapping] under the Host Interface Management in the [Configuration] menu.

→ The [Set LUN Mapping (Initial)] screen appears.

#### Caution

- In the following cases, an error occurs and a message to that effect appears. Click [OK] button to return to the [Menu] screen.
  - When only one Open Volume, Snap Data Volume, Thin Provisioning Volume, or MVV Volume is created in the ETERNUS DX400/DX8000 series
  - When no FC-CA or iSCSI-CA for which Host Affinity can be disabled is installed
- When an ETERNUS DX400/DX8000 series is busy, a message to that effect is displayed. Wait while processing.

- 2 Select the CA Port to copy LUN Mapping (copy source), and click the [Copy] button.



→ The [Set LUN Mapping (Copy Destination CA Port Selection)] screen appears.

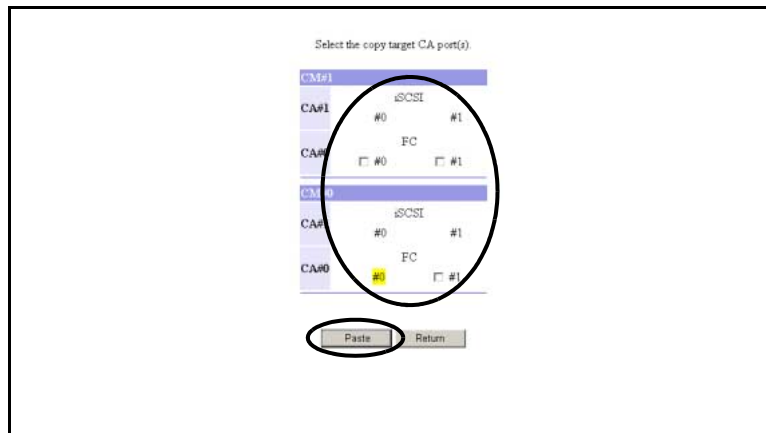
**Caution**

- When the [Copy] button is clicked without selecting a CA Port, an error screen appears.
- When the [Copy] button is clicked with no copy destination CA Port installed, which the same type as the copy source CA Port and whose Host Affinity is disabled, an error screen appears.
- When logged on using a Resource Domain Administrator account, the volumes that are not assigned to the relevant Resource Domain are not copied. After executing the copy, the volume area (Volume#) for the relevant volume in the Copy Destination Mapping information goes blank.

**Note**

- "FC8G" indicates FC with a maximum transfer speed of 8Gbit/s.
- [Set LUN Mapping] is available when the [Affinity Mode] of the target FC-CA Port or iSCSI-CA Port is [OFF (Disabled)]. Copy destination check boxes are only displayed for FC-CA or iSCSI-CA Ports whose [Affinity Mode] is [OFF (Disabled)].

**3** Select copy destination CA Port(s) (multiple selections can be made), and click the [Paste] button.

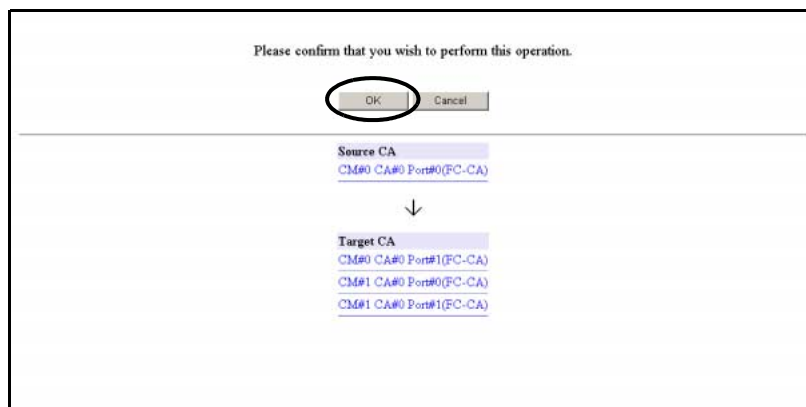


The copy source CA Port is displayed with a yellow background.  
→ The [Set LUN Mapping (Copy Check)] screen appears.

**Caution** 

- When the [Paste] button is clicked without selecting a copy destination CA Port, an error screen appears.
- When using the copy function, the copy destination CA Port and the copy source CA Port must be the same type.
- When logged on using a Resource Domain Administrator account, the CA port, in which the volumes that are not assigned to the relevant Resource Domain are mapped, cannot be selected as the copy destination.

- 4** Click the [OK] button.



→ Displays the [Set LUN Mapping (Copy Progress Check)] screen. After the process is successfully completed, the [Set LUN Mapping (Copy Result)] screen appears.

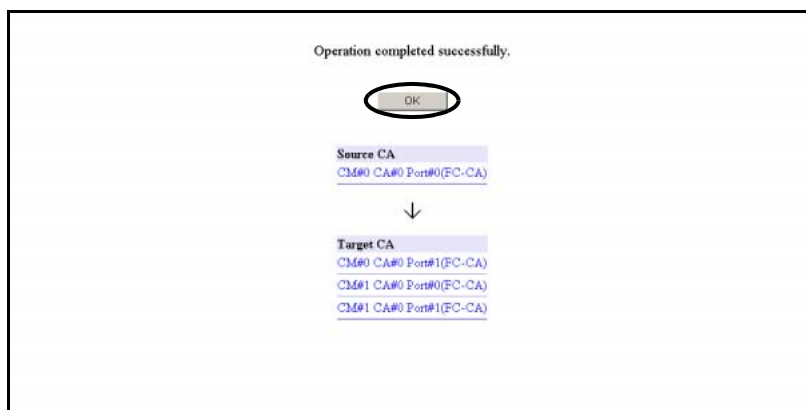


Note

Clicking the [Source CA] link or [Target CA] link displays the LUN Mapping List of the CA Port in another window.

LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036
0x007	0x0007	0x017	0x0017	0x027	0x0027	0x037	0x0037
0x008	0x0008	0x018	0x0018	0x028	0x0028	0x038	0x0038
0x009	0x0009	0x019	0x0019	0x029	0x0029	0x039	0x0039
0x00A	0x000A	0x01A	0x001A	0x02A	0x002A	0x03A	0x003A
0x00B	0x000B	0x01B	0x001B	0x02B	0x002B	0x03B	0x003B
0x00C	0x000C	0x01C	0x001C	0x02C	0x002C	0x03C	0x003C
0x00D	0x000D	0x01D	0x001D	0x02D	0x002D	0x03D	0x003D
0x00E	0x000E	0x01E	0x001E	0x02E	0x002E	0x03E	0x003E
0x00F	0x000F	0x01F	0x001F	0x02F	0x002F	0x03F	0x003F
0x040	0x0040	0x050	0x0050	0x060	0x0060	0x070	0x0070

## 5 Click the [OK] button.



→ Returns to the [Set LUN Mapping (Initial)] screen.

End of procedure

## 5.4.7 Set CA Reset Group

This function sets a CA Reset Group without suspending ETERNUS DX400/DX8000 series operations.

A CA Reset Group is a setting to group multiple CAs to be reset concurrently. If a host becomes unable to access the volumes in the ETERNUS DX400/DX8000 series via a CA for some reason, the volumes reserved by the inaccessible CA can be released by resetting grouped CAs from the host.

Set CA Reset Group only when hosts and the ETERNUS DX400/DX8000 series are connected via FC-CA or iSCSI-CA.

### Caution



- One FC-CA Port, or one iSCSI-CA Port, can be a member of one CA Reset Group.
- Only the same type of CA can be a member of a CA Reset Group.
- When a CA port is shared by multiple servers using the Host Affinity function, only volumes that are included in the LUN mapping assigned to the target server in the Host-Affinity Group setting are subject to release.



### Note

- 4Gbit/s and 8Gbit/s maximum transfer speed FC-CA ports can be members of the same CA Reset Group.
- For a server which is necessary to set/change the CA Reset Group, refer to the "ETERNUS DX Disk storage systems Server Connection Guide" for each OS type.

The following explains the CA Reset Group setting procedures.

## Procedure

- 1 Click [Set CA Reset Group] under the Host Interface Management in the [Configuration] menu.  
→ The [Set CA Reset Group (Initial)] screen appears.
- 2 Select the CA port to set the Reset Group, and click the [Set] button.

Please select the CA port whose Reset Group is to be set.

CA#0				CA#1				CA#2				CA#3			
CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3
FC	FC	FC	iSCSI	FC	FC	FCLINK	FCLINK	FC	FC	iSCSI	OCLINK	FC	FC	FC	OCLINK
#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0
#1	#1	#1		#1	#1	#1	#1	#1	#1	#1	#1	#1	#1	#1	#1
#2	#2	#2		#2	#2	#2	#2	#2	#2	#2	#2	#2	#2	#2	#2
#3	#3	#3		#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3

→ The [Set CA Reset Group (Select Reset Group)] screen appears.  
The CA port selected in Step 2 is displayed with a yellow background and without checkbox.  
The members in the Reset Group to which the CA Port selected in Step 2 belongs are displayed with a yellow background with a checkbox checked.

### Caution



When the [Set] button is clicked without selecting a CA port to set a Reset Group, an error screen appears.



### Note

"FC8G" indicates FC with a maximum transfer speed of 8Gbit/s.

- 3** Select other CA Ports to configure a Reset Group with the CA Port selected in Step 2, and click the [Set] button (multiple selection can be made).  
 To delete a CA Port from the Reset Group of the CA Port selected in Step 2, clear the checkbox of the CA Port to delete and click the [Set] button (multiple selection can be made).

Please select any other CA ports to be assigned to this Reset Group (including CM#0 CA#0 Port#0 (FC-CA)).

CM#0				CM#1				CM#2				CM#3			
CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3
FC	FC	FC	iSCSI	FC	FC	FCLINK	FCLINK	FC	FC	iSCSI	OCLINK	FC	FC	FC	FCLINK
<input checked="" type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0
<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1
<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2
<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3

→ The [Set CA Reset Group (Initial)] screen appears.

**Caution**

- One CA Port cannot be registered to multiple CA Reset Groups. When specifying a CA Port that has already been registered in another CA Reset Group, the CA Port will be deleted from the registered CA Reset Group.
- The CA Port selected in Step 2 cannot be deleted.

**Note**

When deleting a CA Port from a CA Reset Group, another CA Reset Group is created with the deleted CA Port. The minimum configuration unit of a CA Reset Group is one CA Port per Reset Group.

- 4** Click the [OK] button.

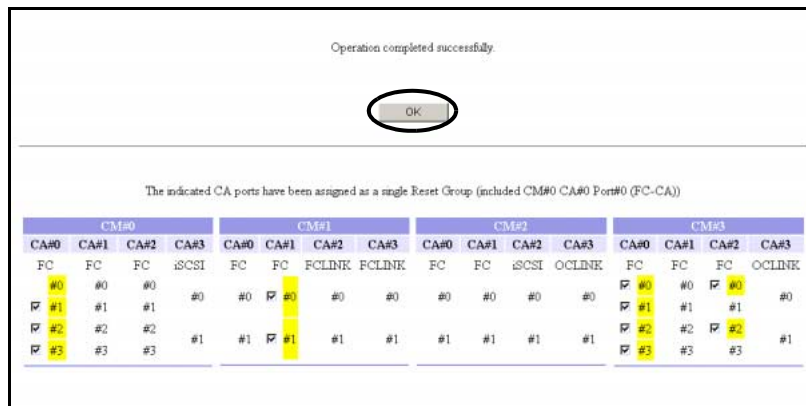
Please confirm that you wish to perform this operation.

The indicated CA ports are to be assigned as a single Reset Group (including CM#0 CA#0 Port#0 (FC-CA)).

CM#0				CM#1				CM#2				CM#3			
CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3
FC	FC	FC	iSCSI	FC	FC	FCLINK	FCLINK	FC	FC	iSCSI	OCLINK	FC	FC	FC	FCLINK
<input checked="" type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input checked="" type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input checked="" type="checkbox"/> #0	<input type="checkbox"/> #0	<input checked="" type="checkbox"/> #0	<input type="checkbox"/> #0
<input checked="" type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input checked="" type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input checked="" type="checkbox"/> #1	<input type="checkbox"/> #1	<input checked="" type="checkbox"/> #1	<input type="checkbox"/> #1
<input checked="" type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input checked="" type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input checked="" type="checkbox"/> #2	<input type="checkbox"/> #2	<input checked="" type="checkbox"/> #2	<input type="checkbox"/> #2
<input checked="" type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input checked="" type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input checked="" type="checkbox"/> #3	<input type="checkbox"/> #3	<input checked="" type="checkbox"/> #3	<input type="checkbox"/> #3

→ Displays the [Set CA Reset Group (Updating Configuration Information)] screen. After the process is successfully completed, the [Set CA Reset Group (Setting Result)] screen appears.

**5** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 5.4.8 Set Host Response

On this screen, you can add, change, and/or delete the Host Response that is added to the response information from the ETERNUS DX400/DX8000 series to the hosts.

With some hosts connected to the ETERNUS DX400/DX8000 series, their I/O device recognition, as well as that of error codes, may be different from the default ETERNUS DX400/DX8000 series Host Response. If the ETERNUS DX400/DX8000 series is connected to such a host, problems may occur: the ETERNUS DX400/DX8000 series may not be recognized by the host, or an error on the ETERNUS DX400/DX8000 series may not be handled properly in the host. To avoid such a situation, [Set Host Response] offers a function by which the ETERNUS DX400/DX8000 series freely changes Host Response in the ETERNUS DX400/DX8000 series for responding to the host.

Change the Host Response setting only when hosts and the ETERNUS DX400/DX8000 series are connected via FC-CA or iSCSI-CA. The allocation target for Host Response created with this function varies, depending on [ON/OFF] status of the Host Affinity function.

**Caution** 

- Host access does not need to be halted when adding a new Host Response.
- Host access does need to be halted when changing/deleting a Host Response.
- If the Host Response is not changed, the [Host Response No.: Default] will be assigned.
- If a Host Response is deleted, the associated Host Responses for the Host World Wide Name, FC-CA Port, iSCSI Host information, and/or iSCSI-CA Port are changed to the [Host Response No.: Default].
- When the Affinity Mode of FC-CA Port or iSCSI-CA Port is [OFF], and the Host Specific Mode allocated to CA port that can use up to 512 LUNs (0x000 – 0x1FF) (\*1) is changed to the mode that can only use up to 256 LUNs (0x000 – 0x0FF) (\*2), the LUN mappings (0x100 – 0x1FF) is deleted.
  - \*1: AIX Mode (Extended Address), HP-UX Mode (SCC), or Linux/NR1000V Mode (Extended Address)
  - \*2: Normal Mode (Default) or AIX Mode
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Resource Domains to which the Host Response can be assigned differ depending on the current user account.
  - When logged on using a Total Administrator account, Host Responses can be assigned to all the Resource Domains.
  - When logged on using a Resource Domain Administrator account, Host Responses can be assigned only to the relevant Resource Domain.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the [Host Response No.: Default] cannot be assigned to a specific Resource Domain. The [Host Response No.:Default] is always a Shared Resource (Share).

---

 Note

- If hosts and the ETERNUS DX400/DX8000 series are connected via FC-CA, Host Response is assigned by Host World Wide Name or by FC-CA Port. A target to which a Host Response is assigned varies depending on [ON/OFF] of the Host Affinity function. Check the [Affinity Mode] of the corresponding FC-CA Port.
  - When the Host Affinity function is [ON (Enabled)]  
Set Host Response for each Host World Wide Name using the [Set Host WorldWideName(s)] function.
  - When the Host Affinity function is [OFF (Disabled)]  
Set Host Response for each FC-CA Port using [Set CA Parameters] function.
- If hosts and the ETERNUS DX400/DX8000 series are connected via iSCSI-CA, Host Response is assigned by the iSCSI Host information or by the iSCSI-CA Port. A target to which a Host Response is assigned varies depending on [ON/OFF] of the Host Affinity function. Check the [Affinity Mode] of corresponding iSCSI-CA Port.
  - When the Host Affinity function is [ON (Enabled)]  
Set Host Response for each iSCSI Host information using the [Set iSCSI Host] function.
  - When the Host Affinity function is [OFF (Disabled)]  
Set Host Response for each iSCSI-CA Port using [Set CA Parameters] function.
- The [Host Response No.: Default] can be changed. Set the Host Response to be used as the default setting to [Default]. For initial patterns of [Default], refer to "[Host Response Setting Item \(Initial Pattern\)](#)" ([page 417](#)). When adding a new Host Response, this initial pattern is used as the default setting.
- For details on how to setup Host Responses, refer to the "ETERNUS DX Disk storage systems Server Connection Guide" for each OS type.

---

The following explains the operating procedures of Set Host Response procedures.  
The following settings are available.

- [Add Host Response](#)
- [Change Host Response](#)
- [Delete Host Response](#)

These procedures are explained in the following sections.

### 5.4.8.1 Add Host Response

This section explains procedures to add Host Response.

#### Procedure

- 1** Click [Set Host Response] under the Host Interface Management in the [Configuration] menu.  
→ The [Set Host Response (Initial)] screen appears.  
Refer to ["A.22.1 Set Host Response \(Initial\) Screen" \(page 764\)](#) for screen details.
- 2** Specify the following and click the [Add] button.
  - Add: Host Response#  
As yet unused ETERNUS DX400/DX8000 series Host Response number(s) are displayed as options in the list box.  
If adding Host Response, please select a number to assign to the Host Response you are adding.
  - Name  
In the text box, enter the name to give to the Host Response you are adding.  
Names already in use cannot be assigned. Entering a name is not mandatory.
  - Assignable Resource Domain No.  
Select the Resource Domain to be assigned to the new Host Response from the list box.  
The [Assignable Resource Domain No.] is only displayed when logged on the ETERNUS DX400/DX8000 series, in which the Resource Domains are registered, using a Total Administrator account.

Host Response List	
No.	Name
Default	
0x01	fuj0001

Add Host Response# [Dropdown] Name [Text Box]

Load Balance Support [Enabled] Page 1/1

[Add] [Delete] [Set] [Menu]

- The [Set Host Response (Detailed Setting)] screen appears.  
Refer to ["A.22.2 Set Host Response \(Detailed Setting\) Screen" \(page 766\)](#) for screen details.

#### Caution



When the [Add] button is clicked without selecting [Add: Host Response #], an error screen appears.

**3** After setting the following items, click the [OK] button.

- Host Response Name
- Command Time-out Interval
- Byte-0 of Inquiry Response
- Inquiry VPD ID Type
- Inquiry Standard Data Version
- Reservation Conflict Response for Test Unit Ready
- Host Specific Mode
- Asymmetric / Symmetric Logical Unit Access
- LUN Mapping Changes
- LUN Capacity Expansion
- Vendor Unique Sense Code
- Sense Code Conversion Pattern

Host Response - 0x04

Host Response Name: 00000004

Command Time-out Interval: ☒ Standard (25 Seconds)  
☐ Custom:  seconds

Load Balance Response: ☒ No Conversion (Default)  
☐ Custom

Byte-0 of Inquiry Response: ☒ Type 1 + Type 3 (Default)  
☐ Type 1  
☐ Type 3

Inquiry VPD ID Type: ☒ Version 05 (Default)  
☐ Version 04  
☐ Version 03

Reservation Conflict Response for Test Unit Ready: ☒ Normal Response (Default)  
☐ Conflict Response

Host Specific Mode: ☒ Normal Mode (Default)  
☐ ADX Mode  
☐ ADX Mode (Extended Address)  
☐ HP-UX Mode (SCC)  
☐ Linux/NR1000V Mode (Extended Address)

Asymmetric / Symmetric Logical Unit Access: ☒ ACTIVE / ACTIVE (Default)  
☐ ACTIVE-ACTIVE / PREFERRED\_PATH

LUN Mapping Changes: ☒ No Report (Default)  
☐ Report

LUN Capacity Expansion: ☒ No Report (Default)  
☐ Report

Vendor Unique Sense Code: ☒ No Report (Default)  
☐ Report

Sense Code Conversion Pattern: ☒ No Conversion (Default)  
☐ Linux Recommended (When not using GR/ETERNUS MPD)  
☐ Windows Recommended (When not using GR/ETERNUS MPD or Device Driver)

[OK] [Cancel]

→ The [Set Host Response (Initial)] screen appears.

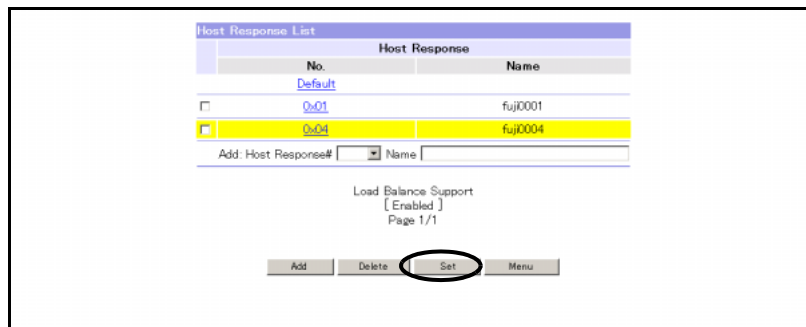
The Host Response information is added to the [Host Response List] (Not added in the ETERNUS DX400/DX8000 series yet).

Repeat Steps 2 to 3 to add more Host Responses.

**Caution**

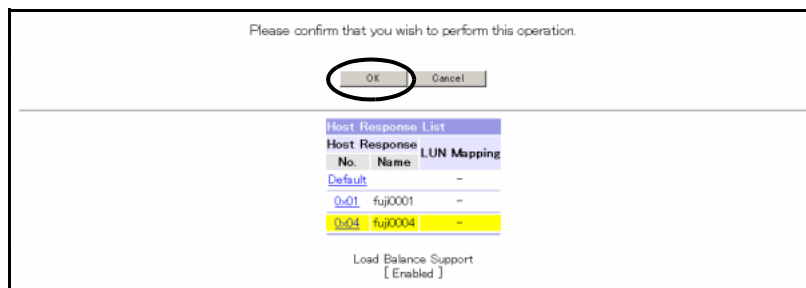
When the [OK] button is clicked after entering characters other than alphanumeric characters, or entering already registered Host Response Name for the Host Response Name entry, an error screen appears.

- 4 Click the [Set] button to register the Host Response information in the device.



The Host Response information to be added is displayed with a yellow background.  
 → The [Set Host Response (Check setting)] screen appears.

- 5 Click the [OK] button.

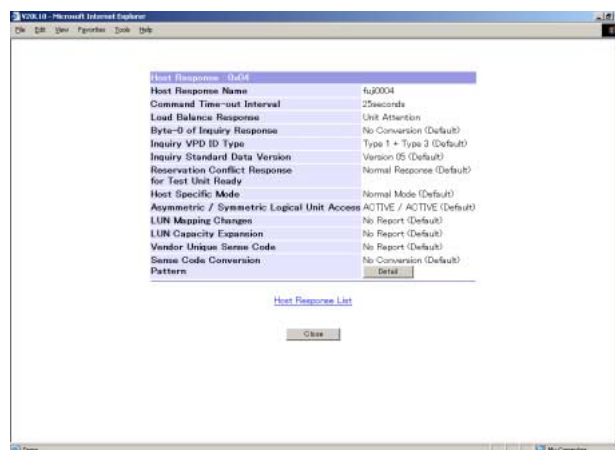


→ Displays the [Set Host Response (Updating Configuration Information)] screen. After the process is successfully completed, the [Set Host Response (Setting Result)] screen appears.

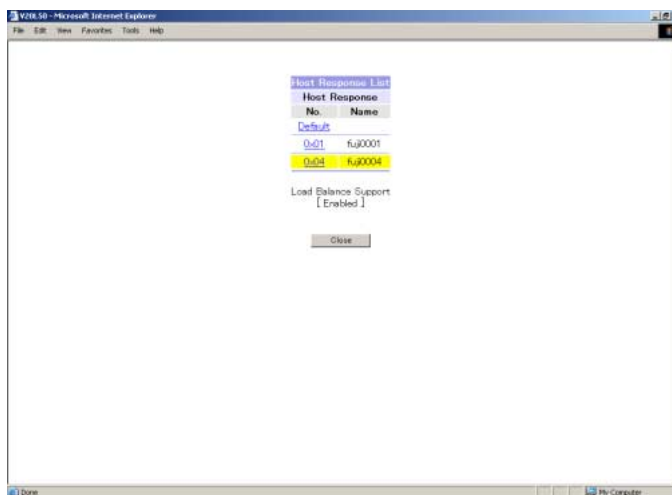


Note

Clicking the [Host Response No.] link on the [Set Host Response (Check Setting)] screen displays details of the Host Response number in another window ([Set Host Response (Host Response Details)] screen).



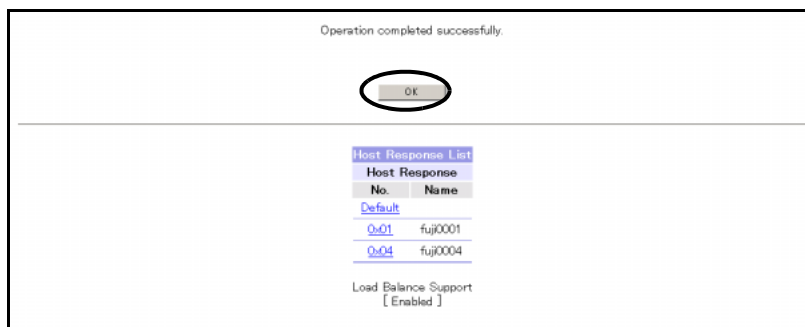
Clicking the [Host Response List] link on the [Set Host Response (Host Response Details)] screen enables checking of the Host Response List ([Set Host Response (Host Response List)] screen).



Details of the sense code conversion can be checked from the [Detail] button of [Sense Code Conversion pattern] ([Set Host Response (Sense Code Details)] screen).



**6** Click the [OK] button.



→ Returns to the [Menu] screen.

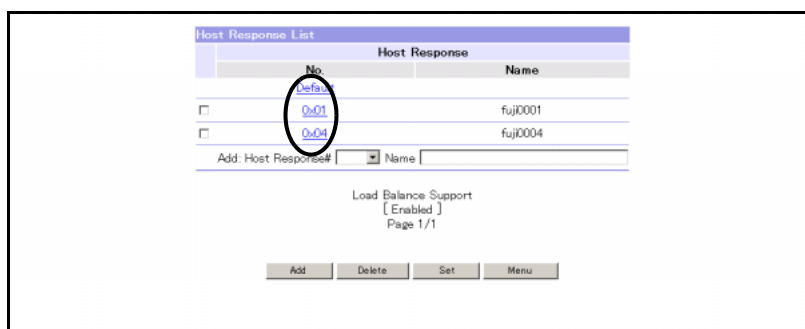
End of procedure

### 5.4.8.2 Change Host Response

This section explains the procedures used to change an already registered Host Response. All items other than [Load Balance Response] can be changed.

#### Procedure

- 1** Click [Set Host Response] under the Host Interface Management in the [Configuration] menu.  
 → The [Set Host Response (Initial)] screen appears.
- 2** Click the [Host Response No.] link of the Host Response you wish to change.



→ The [Set Host Response (Detailed Setting)] screen appears.

Refer to ["A.22.2 Set Host Response \(Detailed Setting\) Screen" \(page 766\)](#) for screen details.

**3** After changing the items, click the [OK] button.

Items which can be changed are as follows.

- Host Response Name
- Command Time-out Interval
- Byte-0 of Inquiry Response
- Inquiry VPD ID Type
- Inquiry Standard Data Version
- Reservation Conflict Response for Test Unit Ready
- Host Specific Mode
- Asymmetric / Symmetric Logical Unit Access
- LUN Mapping Changes
- LUN Capacity Expansion
- Vendor Unique Sense Code
- Sense Code Conversion Pattern

The screenshot shows a configuration window titled 'Host Response - 0x04'. It contains a list of settings on the left and their corresponding options on the right. A large circle is drawn around the 'Host Response Name' field, which is currently set to 'huj0004'. Below the list of settings, at the bottom of the window, the 'OK' button is circled.

Host Response Name	huj0004
Command Time-out Interval	<input checked="" type="radio"/> Standard (25 Seconds) <input type="radio"/> Custom: <input type="text"/> seconds
Load Balance Response	Unit Attention
Byte-0 of Inquiry Response	<input checked="" type="radio"/> No Conversion (Default) <input type="radio"/> Custom
Inquiry VPD ID Type	<input checked="" type="radio"/> Type 1 + Type 3 (Default) <input type="radio"/> Type 1 <input type="radio"/> Type 3
Inquiry Standard Data Version	<input checked="" type="radio"/> Version 05 (Default) <input type="radio"/> Version 04 <input type="radio"/> Version 03
Reservation Conflict Response for Test Unit Ready	<input checked="" type="radio"/> Normal Response (Default) <input type="radio"/> Conflict Response
Host Specific Mode	<input checked="" type="radio"/> Normal Mode (Default) <input type="radio"/> ADX Mode <input type="radio"/> ADX Mode (Extended Address) <input type="radio"/> HP-UX Mode (SCC) <input type="radio"/> Linux/NR1000V Mode (Extended Address)
Asymmetric / Symmetric Logical Unit Access	<input checked="" type="radio"/> ACTIVE / ACTIVE (Default) <input type="radio"/> ACTIVE-ACTIVE / PREFERRED_PATH
LUN Mapping Changes	<input checked="" type="radio"/> No Report (Default) <input type="radio"/> Report
LUN Capacity Expansion	<input checked="" type="radio"/> No Report (Default) <input type="radio"/> Report
Vendor Unique Sense Code	<input checked="" type="radio"/> No Report (Default) <input type="radio"/> Report
Sense Code Conversion Pattern	<input checked="" type="radio"/> No Conversion (Default) <input type="radio"/> Linux Recommended (When not using QIP/ED) <input type="radio"/> Windows Recommended (When not using GR/ETERNUS MPD or Device Driver)

→ The [Set Host Response (Initial)] screen appears.

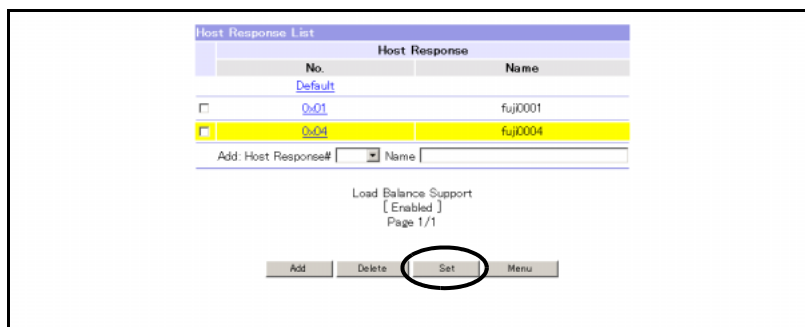
The changed Host Response information is updated to the [Host Response List] (Not updated in the ETERNUS DX400/DX8000 series yet).

Repeat Steps 2 to 3 to change more Host Responses.

**Caution**

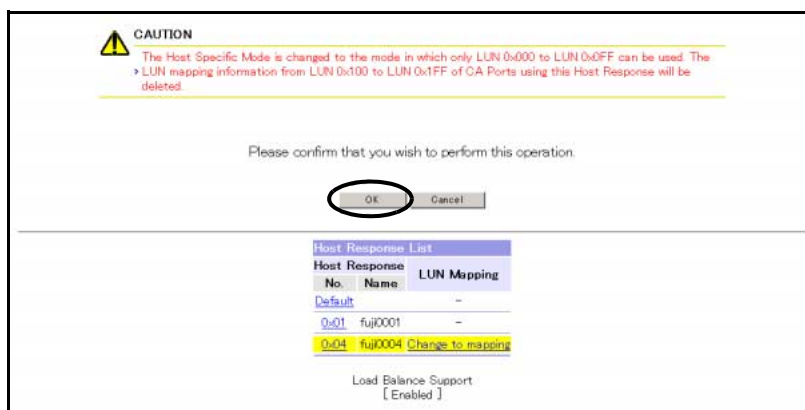
When the [OK] button is clicked after entering characters other than alphanumeric characters, or entering already registered Host Response Name for the Host Response Name entry, an error screen appears.

- 4 Click the [Set] button to register the Host Response information in the device.



The Host Response information to be changed is displayed with a yellow background.  
 → The [Set Host Response (Check setting)] screen appears.

- 5 Click the [OK] button.



→ Displays the [Set Host Response (Updating Configuration Information)] screen. After the process is successfully completed, the [Set Host Response (Setting Result)] screen appears.

**Caution**

When the Affinity Mode of FC-CA Port or iSCSI-CA Port is [OFF], and the Host Specific Mode that can use up to 512 LUNs (0x000 – 0x1FF) (\*1) is changed to the mode that can only use up to 256 LUNs (0x000 – 0x0FF) (\*2), the LUN mappings allocated for CA Port (0x100 – 0x1FF) is deleted.

- \*1: AIX Mode (Extended Address), HP-UX Mode (SCC), or Linux/NR1000V Mode (Extended Address)
- \*2: Normal Mode (Default) or AIX Mode

For the Host Response where the LUN Mapping is deleted, the [Change to mapping] link is displayed in the [LUN Mapping] field. Clicking the link displays the list of CA Port allocated to the LUN Mapping to be deleted ([Set Host Response (Changed LUN Mapping CA Port List)] screen).



Clicking the CA Port link displays the LUN mapping. LUN mappings to be deleted (0x100 – 0x1FF) is displayed with a yellow background ([Set Host Response (Reference LUN Mapping Information)] screen).

LUN	Volume#	LUN	Volume#	LUN	Volume#	LUN	Volume#
0x000	0x0000	0x010	0x0010	0x020	0x0020	0x030	0x0030
0x001	0x0001	0x011	0x0011	0x021	0x0021	0x031	0x0031
0x002	0x0002	0x012	0x0012	0x022	0x0022	0x032	0x0032
0x003	0x0003	0x013	0x0013	0x023	0x0023	0x033	0x0033
0x004	0x0004	0x014	0x0014	0x024	0x0024	0x034	0x0034
0x005	0x0005	0x015	0x0015	0x025	0x0025	0x035	0x0035
0x006	0x0006	0x016	0x0016	0x026	0x0026	0x036	0x0036
0x007	0x0007	0x017	0x0017	0x027	0x0027	0x037	0x0037
0x008	0x0008	0x018	0x0018	0x028	0x0028	0x038	0x0038
0x009	0x0009	0x019	0x0019	0x029	0x0029	0x039	0x0039
0x00A	0x000A	0x01A	0x001A	0x02A	0x002A	0x03A	0x003A
0x00B	0x000B	0x01B	0x001B	0x02B	0x002B	0x03B	0x003B
0x00C	0x000C	0x01C	0x001C	0x02C	0x002C	0x03C	0x003C
0x00D	0x000D	0x01D	0x001D	0x02D	0x002D	0x03D	0x003D
0x00E	0x000E	0x01E	0x001E	0x02E	0x002E	0x03E	0x003E
0x00F	0x000F	0x01F	0x001F	0x02F	0x002F	0x03F	0x003F
0x040	0x0040	0x050	0x0050	0x060	0x0060	0x070	0x0070
0x041	0x0041	0x051	0x0051	0x061	0x0061	0x071	0x0071
0x042	0x0042	0x052	0x0052	0x062	0x0062	0x072	0x0072

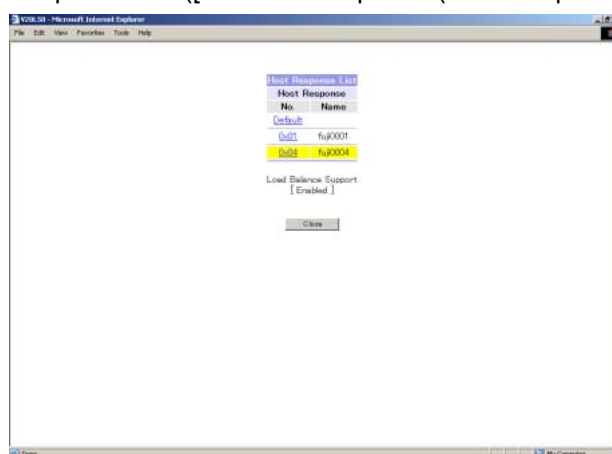


Note

Clicking the [Host Response No.] link on the [Set Host Response (Check Setting)] screen displays details of the Host Response number in another window ([Set Host Response (Host Response Details)] screen).



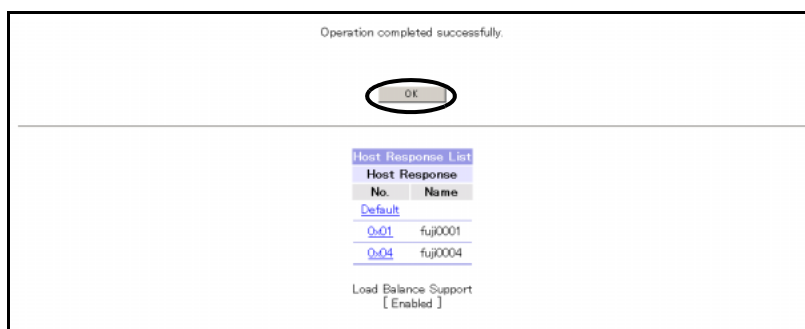
Clicking the [Host Response List] link on the [Set Host Response (Host Response Details)] screen enables checking of the Host Response List ([Set Host Response (Host Response List)] screen).



Details of the sense code conversion can be checked from the [Detail] button of [Sense Code Conversion Pattern] ([Set Host Response (Sense Code Details)] screen).



**6** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 5.4.8.3 Delete Host Response

This section explains procedures to delete Host Response.

#### Procedure

- 1 Click [Set Host Response] under the Host Interface Management in the [Configuration] menu.  
 → The [Set Host Response (Initial)] screen appears.

- 2 Select the checkbox(es) for the Host Response to be deleted (multiple selections can be made), and click the [Delete] button.

Host Response List	
No.	Name
Default	
0x01	fuj0001
0x04	fuj0004

Add: Host Response#  Name

Load Balance Support  
[ Enabled ]  
Page 1/1

Add Delete Set Menu

→ The [Set Host Response (Initial)] screen appears as the selected Host Response is deleted (Not deleted from the ETERNUS DX400/DX8000 series yet).

**Caution**

- When the [Delete] button is clicked without selecting the target to be deleted, an error screen appears.
- The [Host Response No.: Default] cannot be deleted. A delete checkbox is not displayed for the [Default] Host Response.

- 3 Click the [Set] button to delete the selected Host Response.

Host Response List	
No.	Name
Default	
0x01	fuj0001

Add: Host Response#  Name

Load Balance Support  
[ Enabled ]  
Page 1/1

Add Delete Set Menu

→ The [Set Host Response (Check setting)] screen appears.

- 4 Click the [OK] button.

Please confirm that you wish to perform this operation.

OK Cancel

Host Response List		
No.	Name	LUN Mapping
Default		--
0x01	fuj0001	--

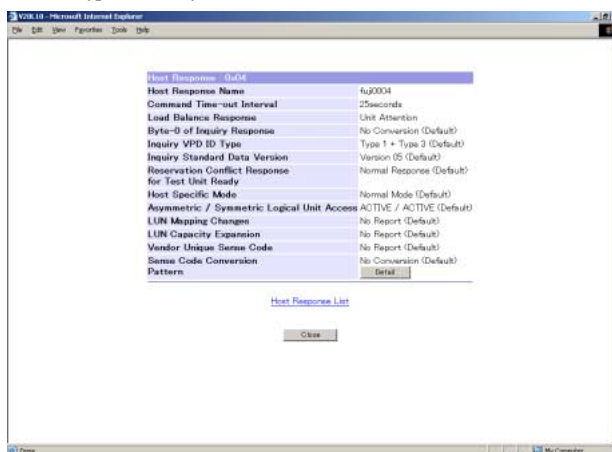
Load Balance Support  
[ Enabled ]

→ Displays the [Set Host Response (Updating Configuration Information)] screen. After the process is successfully completed, the [Set Host Response (Setting Result)] screen appears.

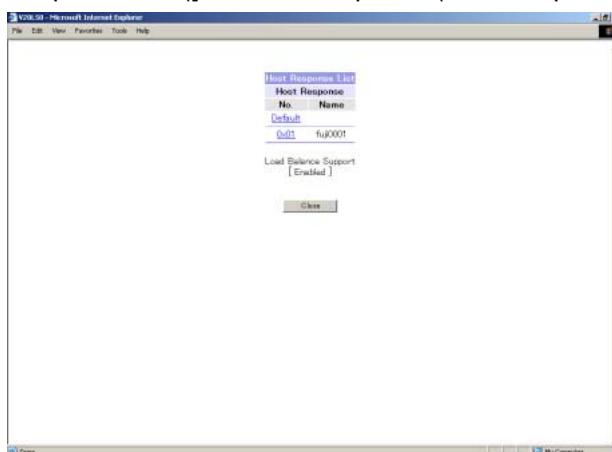


Note

Clicking the [Host Response No.] link on the [Set Host Response (Check Setting)] screen displays details of the Host Response number in another window ([Set Host Response (Host Response Details)] screen).



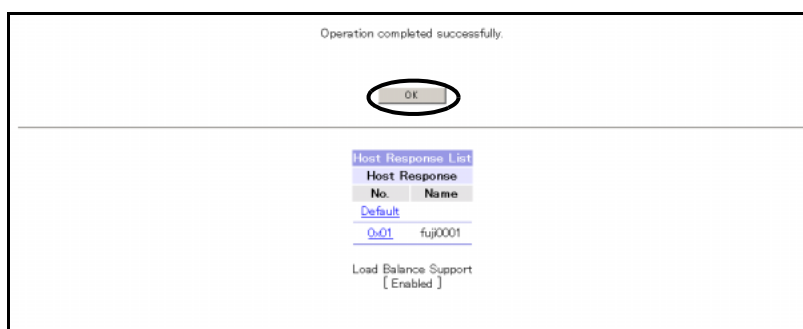
Clicking the [Host Response List] link on the [Set Host Response (Host Response Details)] screen enables checking of the Host Response List ([Set Host Response (Host Response List)] screen).



Details of the sense code conversion can be checked from the [Detail] button of [Sense Code Conversion Pattern] ([Set Host Response (Sense Code Details)] screen).



**5** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

#### ■ Host Response Setting Item (Initial Pattern)

The following table shows the initial pattern of Host Response Setting item.

Host Response Setting Item	Initial Pattern
Host Response Name	(Blank)
Command Time-out Interval	25 Seconds
Load Balance Response	Depends on the "Disable Load Balance" (*1) status of each device. <ul style="list-style-type: none"> <li>• When "Disable Load Balance" is enabled: Disabled</li> <li>• When "Disable Load Balance" is disabled: Unit Attention</li> </ul>
Byte-0 of Inquiry Response	No Conversion (Default)
Inquiry VPD ID Type	Type 1 + Type 3 (Default)
Inquiry Standard Data Version	Version 05 (Default)
Reservation Conflict Response for Test Unit Ready	Normal Response (Default)
Host Specific Mode	Normal Mode (Default)
Asymmetric / Symmetric Logical Unit Access	ACTIVE / ACTIVE (Default)
LUN Mapping Changes	No Report (Default)
LUN Capacity Expansion	No Report (Default)
Vendor Unique Sense Code	No Report (Default)
Sense Code Conversion Pattern	No Conversion (Default)

\*1: "Disabled Load Balance" may be set using the [Set Sub System Parameters] function.

### 5.4.9 Set LCU (ETERNUS DX8000 series only)

This screen is used to add/change/delete Logical Control Units (LCUs) in the ETERNUS DX8100/DX8400/DX8700 without stopping operations.

LCU is a virtual FCU (File Control Unit) that is defined in the Mainframe disk subsystem. LCU Setting enables the mainframe host to recognize ETERNUS DX8100/DX8400/DX8700 which has more than 256 Logical Volumes as multiple logical subsystems. In the ETERNUS DX8100/DX8400/DX8700, up to 32 LCUs (for ETERNUS DX8400/DX8700) are defined, and up to 256 Logical Volumes can reside in each LCU. A Unique SSID (Subsystem ID) is assigned to each LCU.

LCU is set only when the host and the ETERNUS DX8100/DX8400/DX8700 are connected via OCLINK or FCLINK.

Number of ETERNUS DX8100 LCUs: 16

Number of ETERNUS DX8400/DX8700 LCUs: 32

**Caution**



- If changing/deleting a LCU during operation, make sure to stop the host access to the OCLINK Port or FCLINK Port where the LCU will be changed/deleted. To add a new LCU, it is not necessary to stop the host access.
- If an LCU is deleted, the connection between the IOA Mapping information and the LCU will be also deleted.
- If changing an LCU during operation, make sure that Remote File Copy Facility-Expand (RFCF-EX) is not performed. All the information related to volumes used for RFCF-EX is initialized when LCU settings are changed.
- Up to 16 LCUs per port can be used as host interfaces.



**Note**

When the RFCF(RBS) license is registered, Remote Flag (RBS mode) can be set.

The following explains Set LCU procedures.  
The following settings are available.

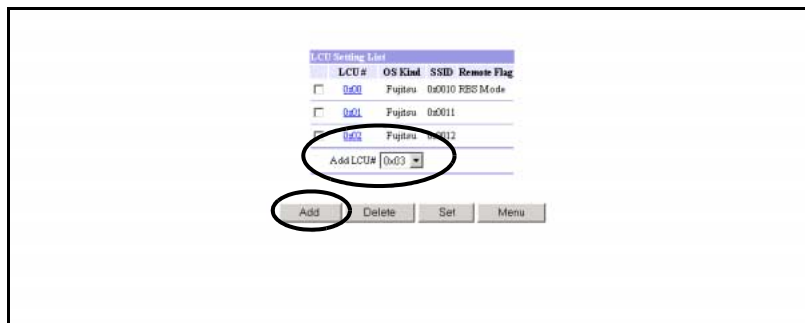
- [Add LCU](#)
- [Change LCU](#)
- [Delete LCU](#)

The procedures are explained in the following sections.

#### 5.4.9.1 Add LCU

##### Procedure

- 1 Click [Set LCU] under the Host Interface Management in the [Configuration] menu.  
→ The [Set LCU (Initial)] screen appears.
- 2 Select the LCU to add in [Add LCU#], and click the [Add] button.



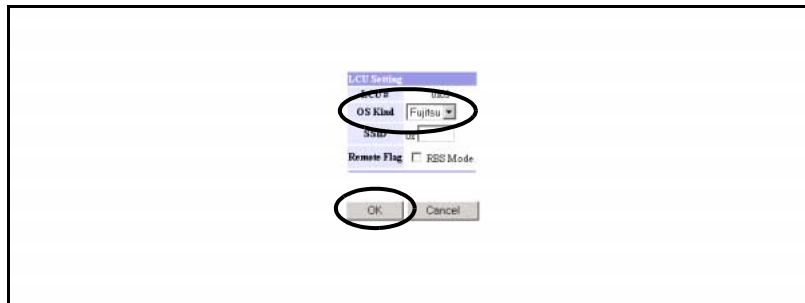
→ The [Set LCU (Setting)] screen appears.

**Caution** 

When the [Add] button is clicked without selecting the additional LCU#, an error screen appears.

**3** Specify the following items, and click the [OK] button.

- OS kind  
Select the OS type of the host that the LCU is connected to from the list box.
- SSID  
Enter SSID (Subsystem ID) for the LCU.  
The number of significant figures for SSID varies depending on the OS type. When OS type is [Fujitsu], SSID is 2 digits. Please enter 4-digit SSID with the extra "00" at the beginning.  
Fujitsu: 0x0002 – 0x00FD (significant figures: last 2 digits)
- Remote Flag  
Sets Enabled/Disabled for LCU RBS mode.



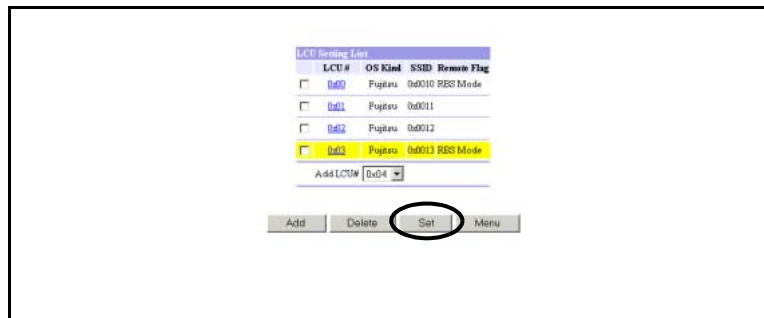
→ The [Set LCU (Initial)] screen appears with the selected LCU added (Not yet set in the ETERNUS DX8100/DX8400/DX8700). The LCU to be added is displayed with a yellow background.

Repeat Steps 2 to 3 to add more LCUs.

**Caution** 

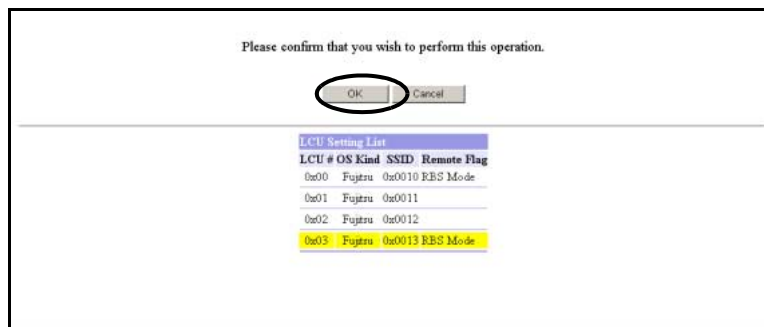
- When the host is connected with multiple ETERNUS DX8100/DX8400/DX8700, the LCU that each device is managing cannot use the same SSID. Make sure not to set the same SSID in any device.
- The Remote Flag is displayed only when the RFCF(RBS) license is registered. The RBS mode can be set for 2 LCUs. However, the RBS mode cannot be set for LCUs #0x10 to #0x1F.
- In the following cases, an error screen appears.
  - When the [OK] button is clicked without selecting OS type
  - When the [OK] button is clicked after alphanumeric other than 0x0002-0x00FD is entered in SSID
  - When the [OK] button is clicked after an already registered value is entered in SSID

- 4 Click the [Set] button to register the added LCU in the ETERNUS DX8100/DX8400/DX8700.



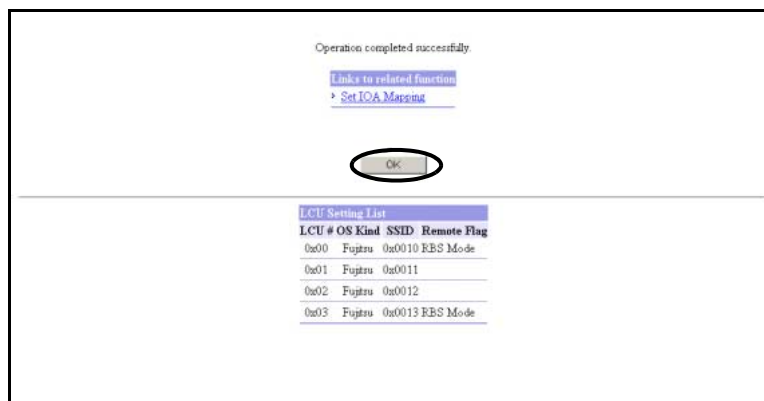
→ The [Set LCU (Check Setting)] screen appears.

- 5 Click the [OK] button.



→ The [Set LCU (Updating Configuration Information)] screen appears. After the process is successfully completed, the [Set LCU (Setting Result)] screen appears.

- 6 Click the [OK] button.



→ Returns to the [Menu] screen.



Note

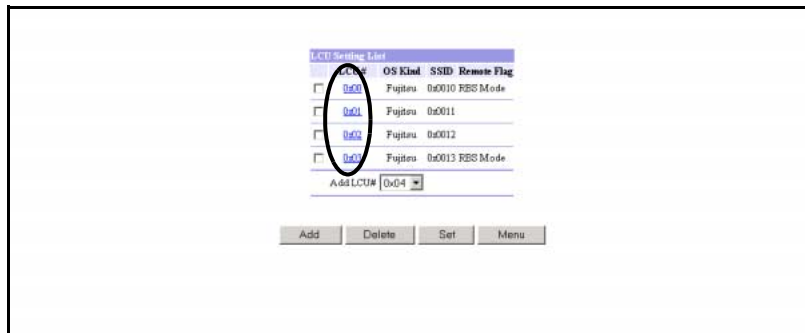
If setting the IOA Mapping, click the [Set IOA Mapping] link.

End of procedure

### 5.4.9.2 Change LCU

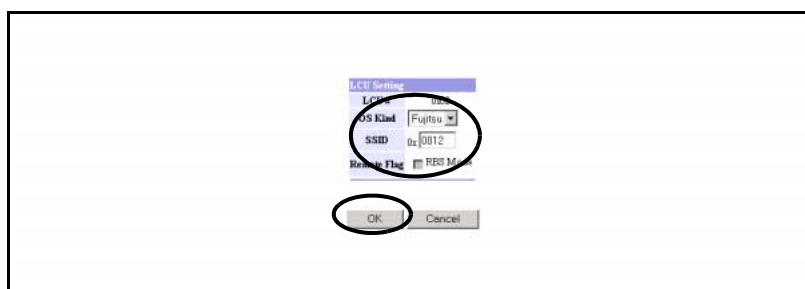
#### Procedure

- 1 Click [Set LCU] under the Host Interface Management in the [Configuration] menu.  
→ The [Set LCU (Initial)] screen appears.
- 2 Click the [LCU#] link of the LCU to be changed.



→ The [Set LCU (Setting)] screen appears.

- 3 Specify the following items, and click the [OK] button.
  - OS kind  
Select the OS type of the host that the LCU is connected to from the list box.
  - SSID  
Enter SSID (Subsystem ID) for the LCU.  
The number of significant figures for SSID varies depending on the OS type. When OS type is [Fujitsu], SSID is 2 digits. Please enter 4-digit SSID with the extra "00" at the beginning.  
Fujitsu: 0x0002 – 0x00FD (significant figures: last 2 digits)
  - Remote Flag  
Sets Enabled/Disabled for LCU RBS mode.

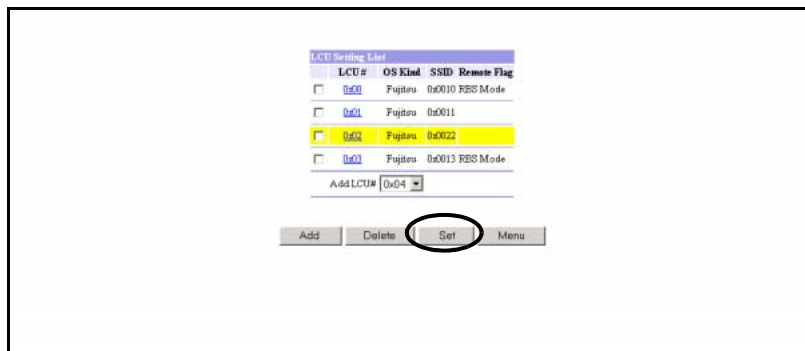


→ The [Set LCU (Initial)] screen appears with the selected LCU changed (Not yet changed in the ETERNUS DX8100/DX8400/DX8700). The LCU to be changed is displayed with a yellow background.  
Repeat Steps 2 to 3 to change more LCUs.

**Caution**

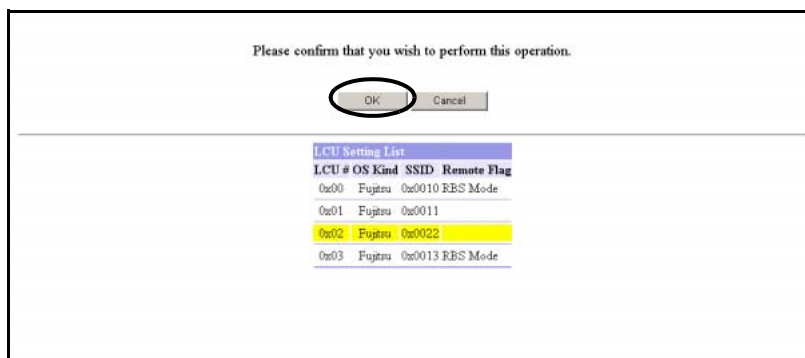
- When the host is connected with multiple ETERNUS DX8100/DX8400/DX8700, the LCU that each device is managing cannot use the same SSID. Make sure not to set the same SSID in any device.
- The Remote Flag is displayed only when the RFCF(RBS) license is registered. The RBS mode can be set for 2 LCUs. However, the RBS mode cannot be set for LCUs #0x10 to #0x1F.
- In the following cases, an error screen appears.
  - When the [OK] button is clicked without selecting OS type
  - When the [OK] button is clicked after alphanumeric other than 0x0002-0x00FD is entered in SSID
  - When the [OK] button is clicked after an already registered value is entered in SSID

**4** Click the [Set] button to register the changed LCU information.



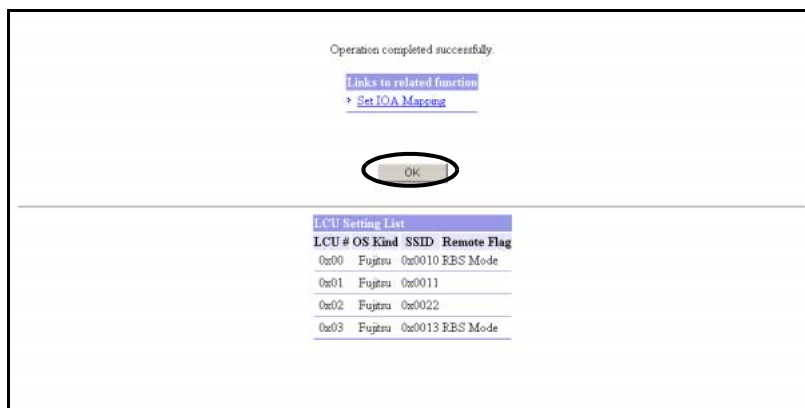
→ The [Set LCU (Check Setting)] screen appears.

**5** Click the [OK] button.



→ The [Set LCU (Updating Configuration Information)] screen appears. After the process is successfully completed, the [Set LCU (Setting Result)] screen appears.

**6** Click the [OK] button.



→ Returns to the [Menu] screen.



Note

If setting the IOA Mapping, click the [Set IOA Mapping] link.

End of procedure

### 5.4.9.3 Delete LCU

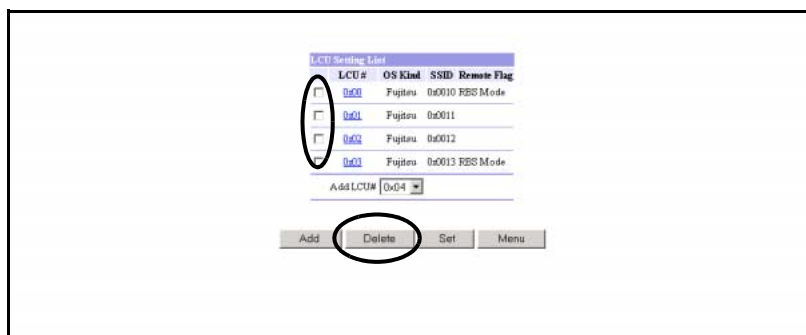
**Caution**

- If an LCU is deleted, the connection between the OCLINK Port or FCLINK Port and the IOA Mapping information will be also deleted. If deleting an LCU during operation, stop the host access to the OCLINK Port or FCLINK Port assigned to the LCU.
- If an LCU is deleted, the connection between the IOA Mapping information and the LCU will be also deleted.
- If the RFCF-RA path is set, that LCU cannot be deleted.

#### Procedure

- 1** Click [Set LCU] under the Host Interface Management in the [Configuration] menu.  
 → The [Set LCU (Initial)] screen appears.

- 2 Select the checkbox for the LCU(s) to be deleted (multiple selections can be made), and click the [Delete] button.



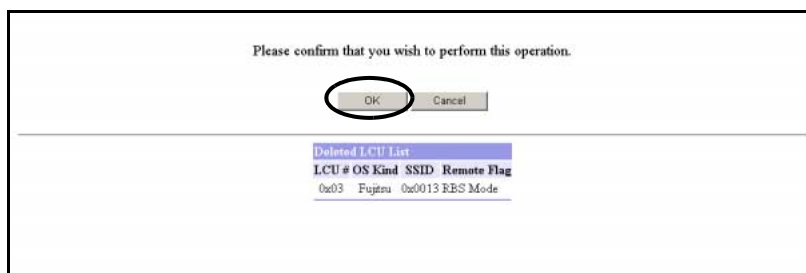
→ The [Set LCU (Deletion Check)] screen appears.

**Caution**



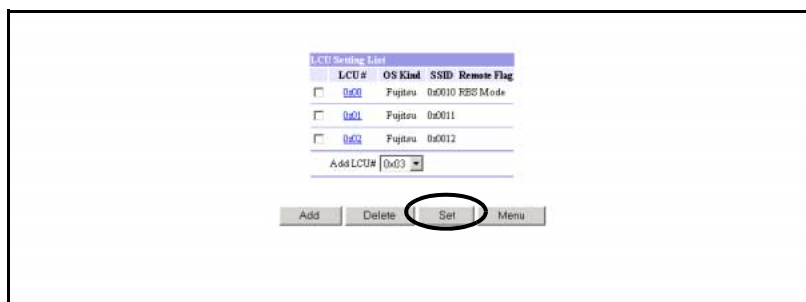
When the [Delete] button is clicked without selecting a checkbox, an error screen appears.

- 3 Click the [OK] button.



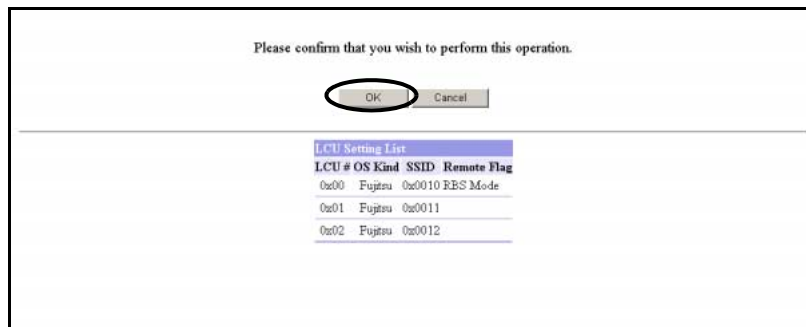
→ The [Set LCU (Initial)] screen appears with the selected LCU(s) deleted (Not yet deleted in the ETERNUS DX8100/DX8400/DX8700).

- 4 Click the [Set] button to delete the selected LCU(s).



→ The [Set LCU (Check Setting)] screen appears.

**5** Click the [OK] button.



→ The [Set LCU (Updating Configuration Information)] screen appears. After the process is successfully completed, the [Set LCU (Setting Result)] screen appears.

**6** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 5.4.10 Set IOA Mapping (ETERNUS DX8000 series only)

On this screen, add/change/delete the mapping information that links the Input/Output Addressing (IOA) recognized by hosts, with the Logical Volume numbers used in the ETERNUS DX8100/DX8400/DX8700, without stopping operations. Relying on the mapping between two numbers, hosts can access the Logical Volumes in the ETERNUS DX8100/DX8400/DX8700. IOA Mapping needs to be set by each Logical Control Unit (LCU) only when the host and the ETERNUS DX8100/DX8400/DX8700 are connected via OCLINK or FCLINK.

**Caution**



- Make sure to stop the host access to the OCLINK Port or FCLINK Port to be changed/deleted when its IOA Mapping information is changed/deleted during operation. When adding new IOA Mapping, it is not necessary to stop the host access.
- When copying IOA Mapping information to an active OCLINK Port or FCLINK Port, make sure to stop host access to the copy destination OCLINK Port or FCLINK Port. To copy IOA Mapping information to a newly added OCLINK Port or FCLINK Port, it is not necessary to stop host access.
- Before creating IOA Mapping information, register LCUs in the ETERNUS DX8100/DX8400/DX8700 using the [LCU Setting] function.

The following explains the IOA Mapping setting procedures.  
The following settings are available.

- [Add/Change/Delete IOA Mapping](#)
- [Copy IOA Mapping](#)

The following explains the procedures.

#### 5.4.10.1 Add/Change/Delete IOA Mapping

This section explains procedures to add/change/delete IOA Mapping.

##### Procedure

- 1 Click [Set IOA Mapping] under the Host Interface Management in the [Configuration] menu.  
→ The [Set IOA Mapping (Initial)] screen appears.

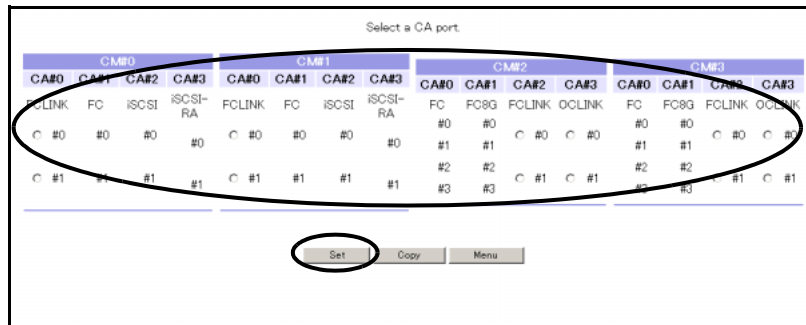
**Caution**



In the following cases, an error occurs and a message to that effect appears. Click [OK] button to return to the [Menu] screen.

- When no LCU is registered
- When no Mainframe Volume or MVV Volume is created in the ETERNUS DX8100/DX8400/DX8700
- When no OCLINK or FCLINK is installed

- 2** Select the CA Port to add/change/delete IOA Mapping, and click the [Set] button.



- For OS type [Fujitsu1] OCLINK ports & FCLINK ports:  
 → The [Set IOA Mapping (Set CU Logical Address)] screen appears. Jump to Step 3.
- For OS type [Fujitsu2] OCLINK ports:  
 → The [Set IOA Mapping (LCU Selection)] screen appears. Jump to Step 4.

**Caution**

- When the [Set] button is clicked without selecting a CA Port, an error screen appears.
- The number of LCUs available for OCLINK Port varies depending on the OS type registered in [Set CA Parameters].
  - For "Fujitsu 1":  
 Multiple LCUs can be selected for an OCLINK Port. (Up to 16 LCUs)
  - For "Fujitsu 2":  
 One LCU can be selected for an OCLINK Port.  
 If there is no IOA Mapping information in any LCU, any LCU registered in the ETERNUS DX8100/DX8400/DX8700 can be chosen. (All [IOA Mappings] have links.)  
 If IOA Mapping information is set in one LCU, it is impossible to create IOA Mapping information in another LCU. ([IOA Mapping] link cannot be set in another LCU.)
- Multiple LCUs can be selected for an FCLINK Port. (Up to 16 LCUs)

**3** Select LCU to be allocated to the CU Logical Address, and click the [Set] button.

CAUTION  
 > IOA Mapping of the LCU which is not assigned to any CU Logical Address will be deleted.

Select an LCU# for CU Logical Address.

CM#0	CA#0	Port#0	(FC LINK)	CU Logical Address	LCU #
				0x00	0x00
				0x01	
				0x02	
				0x03	0x02
				0x04	
				0x05	
				0x06	
				0x07	
				0x08	
				0x09	
				0x0A	
				0x0B	
				0x0C	
				0x0D	
				0x0E	
				0x0F	

Set Return

→ The [Set IOA Mapping (LCU Selection)] screen appears.

**Caution**

- Up to 16 LCUs per port can be used for host interfaces. For ETERNUS DX8400/DX8700, select the 16 LCUs to be used from the maximum 32 LCUs available, and allocate them to CU Logical Addresses. The registered LCUs are displayed in the [LCU#] list box. CU Logical Addresses must also be allocated in the ETERNUS DX8100, which has a maximum 16 LCUs available.
- IOA Mapping information is deleted for LCUs that are deallocated from CU Logical Addresses.

**4** Click the [LCU#] link to set IOA Mapping.

Select an LCU to edit IOA Mapping

CM#0	CA#0	Port#0	(FC LINK)	CU Logical Address	LCU #	OS Kind	SSID
				0x00	0x00	Fujitsu	0x0002
				0x01	0x01	Fujitsu	0x0004
				0x02	0x02	Fujitsu	0x0006
				0x03	0x03	Fujitsu	0x0008
				0x0C	0x14	Fujitsu	0x002A
				0x0D	0x15	Fujitsu	0x002C
				0x0E	0x16	Fujitsu	0x002E

Set Return

→ The [Set IOA Mapping (Setting)] screen appears.

**Note**

[CU Logical Address] is only displayed on arrival from the screen in Step 3.  
 A yellow background indicates a CU Logical Address with an added or changed LCU.

## 5 Create IOA Mapping information.

### ■ To set using [Set Range]

Create IOA Mapping information for any sequential IOAs for the LCU of the OCLINK Port or FCLINK Port.

(1) Select the [Set Range] radio button.

(2) Select start/end IOAs to create IOA Mapping information for sequential IOAs from the list box.

(3) Enter the starting Logical Volume number in the text box for multiple allocations.

(4) Click the [Execute] button to create IOA Mapping information of IOAs and Logical Volume numbers in the lower part of the screen.

IOA Mapping Settings

☒ Set Range From: IOA 0x [0x00] To: IOA 0x [0x05]  
 Start Volume# 0x [ ]

☐ Delete Range From: IOA 0x [0x00] To: IOA 0x [0x05]  
☐ Delete ALL Delete all IOA-Volume# Setting in this LCU

IOA	Volume#	IOA	Volume#	IOA	Volume#	IOA	Volume#
0x00	0x [ ]	0x10	0x [ ]	0x20	0x [ ]	0x30	0x [ ]
0x01	0x [ ]	0x11	0x [ ]	0x21	0x [ ]	0x31	0x [ ]
0x02	0x [ ]	0x12	0x [ ]	0x22	0x [ ]	0x32	0x [ ]
0x03	0x [ ]	0x13	0x [ ]	0x23	0x [ ]	0x33	0x [ ]
0x04	0x [ ]	0x14	0x [ ]	0x24	0x [ ]	0x34	0x [ ]
0x05	0x [ ]	0x15	0x [ ]	0x25	0x [ ]	0x35	0x [ ]

If there is already IOA Mapping information, it will be replaced by the IOA Mapping information specified in the above procedures.

■ To add/change/delete manually

Enter the Mainframe Volume No. corresponding to the IOA, or delete the entered value in the Volume# text box.

- (1) Directly input or delete the Logical Volume number in [Volume#] in the lower part of the screen and update the IOA Mapping information that consists of the IOAs and the Logical Volume numbers.

Mainframe Volume List

**IOA Mapping Setting**

☒ Set Range From: IOA 0x To: IOA 0x  
 Start Volume# 0x

☐ Delete Range From: IOA 0x To: IOA 0x

☐ Delete ALL Delete all IOA-Volume# Setting in this LCU

Execute

Set Return

IOA	Volume#	IOA	Volume#	IOA	Volume#	IOA	Volume#
0x00	0x	0x10	0x	0x20	0x	0x30	0x
0x01	0x	0x11	0x	0x21	0x	0x31	0x
0x02	0x	0x12	0x	0x22	0x	0x32	0x
0x03	0x	0x13	0x	0x23	0x	0x33	0x
0x04	0x	0x14	0x	0x24	0x	0x34	0x
0x05	0x	0x15	0x	0x25	0x	0x35	0x

■ To delete using [Delete Range]

- (1) Select the [Delete Range] radio button.
- (2) Select start/end IOAs to delete IOA Mapping information for sequential IOAs from the list box.
- (3) Clicking the [Execute] button deletes the IOA Mapping information assigned from CA Port and LCU in the lower part of the screen (Not yet updated in the ETERNUS DX8100/DX8400/DX8700).

Mainframe Volume List

**IOA Mapping Setting**

☐ Set Range From: IOA 0x To: IOA 0x  
 Start Volume# 0x

☒ Delete Range From: IOA 0x To: IOA 0x

☐ Delete ALL Delete all IOA-Volume# Setting in this LCU

Execute

Set Return

IOA	Volume#	IOA	Volume#	IOA	Volume#	IOA	Volume#
0x00	0x	0x10	0x	0x20	0x	0x30	0x
0x01	0x	0x11	0x	0x21	0x	0x31	0x
0x02	0x	0x12	0x	0x22	0x	0x32	0x
0x03	0x	0x13	0x	0x23	0x	0x33	0x
0x04	0x	0x14	0x	0x24	0x	0x34	0x
0x05	0x	0x15	0x	0x25	0x	0x35	0x

- To delete using [Delete ALL]

- (1) Select the [Delete ALL] radio button.
- (2) Click the [Execute] button to delete all the IOA Mapping information allocated to the LCU which is selected on the [Set IOA Mapping (Select LCU)] screen (Not yet deleted in the ETERNUS DX8100/DX8400/DX8700).

IOA Mapping Setting

Set Range From: IOA 0x To: IOA 0x  
Start Volume# 0x

Delete Range From: IOA 0x To: IOA 0x  
Delete ALL Delete all IOA-Volume# Setting in this LCU

Execute

Set Return

IOA	Volume#	IOA	Volume#	IOA	Volume#	IOA	Volume#
0x00	0x	0x10	0x	0x20	0x	0x30	0x
0x01	0x	0x11	0x	0x21	0x	0x31	0x
0x02	0x	0x12	0x	0x22	0x	0x32	0x
0x03	0x	0x13	0x	0x23	0x	0x33	0x
0x04	0x	0x14	0x	0x24	0x	0x34	0x
0x05	0x	0x15	0x	0x25	0x	0x35	0x

### Caution

- LCU manages the number of Logical Volumes and IOA Mapping for each CA Port. The number of Logical Volumes managed by one LCU is 256. The Logical Volumes assigned to the IOA Mapping managed by an LCU cannot be used by another LCU. (Example 1)

When creating [IOA: 0x01 – Logical Volume# 0x0001] in the IOA Mapping information of OCLINK Port#0 LCU# 0x00

- [Logical Volume# 0x0001] cannot be allocated anywhere except [LCU# 0x00] for OCLINK and FCLINK registered in the ETERNUS DX8100/DX8400/DX8700.
- In the case of OCLINK or FCLINK other than OCLINK Port#0, [Logical Volume# 0x0001] can be assigned to any IOA within [LCU# 0x00] except for [IOA: 0x01].
- In the case of OCLINK or FCLINK other than OCLINK Port#0, [Logical Volume# 0x0001] is not required to be allocated to any IOA within [LCU# 0x00].

(Example 2)

When 250 Logical Volumes are mapped in the IOA Mapping information of OCLINK Port#0 LCU#0x00.

Only six Logical Volumes can be mapped in the LCU#0x00 of other CA Port.

- If using in manual operation (direct input), you do not need to select a radio button.

- In the following cases, an error screen appears.
  - When the [Execute] button is clicked without selecting the Set Range, Delete Range, or Delete ALL radio button.
  - When the [Execute] button is clicked without selecting either [From: IOA] or [To: IOA], or both in the Set Range or Delete Range.
  - When the [Execute] button is clicked without specifying a [Start Volume#] in the Set Range.
  - When the [Execute] button is clicked with inappropriate characters entered in [Start Volume#], or with the value in [Start Volume#] exceeding the Logical Volume number of Mainframe Volumes in the Set Range.
  - When the [Set] button is clicked with inappropriate characters entered in Volume#, with an undefined Mainframe Volume No. entered, or with the same Mainframe Volume No. entered for multiple LUNs.
  - When the [Set] button is clicked with the number of Mainframe Volumes exceeding the number allocated to the LCU (maximum 256).



Note

Clicking the [Mainframe Volume List] link displays the list of Mainframe Logical Volumes (Mainframe Volume/MVV Volume) in another window.

Logical Volume	Mainframe#	Opunit#	Name	Status	Volume Type	Encryption	Capacity (MB)	RAID Group No.	Name	No.	Name	TPP
0x0000	-	-	-	Available	F8427H	-	-	0x001	raid_001	-	-	-
0x0001	-	-	-	Available	F8427K	-	-	0x003	raid_003	-	-	-
0x0002	-	-	-	Available	F8427H	-	-	0x001	raid_001	-	-	-
0x0003	-	-	-	Available	F8427H	-	-	0x001	raid_001	-	-	-
0x0004	-	-	-	Available	F8427K	-	-	0x003	raid_003	-	-	-
0x0005	-	-	-	Available	F8427K	-	-	0x003	raid_003	-	-	-
0x0006	-	-	-	Available	F8427Q	-	-	0x005	raid_005	-	-	-
0x0007	-	-	-	Available	F8427K	-	-	0x003	raid_003	-	-	-
0x0008	-	-	-	Available	F8427K	-	-	0x003	raid_003	-	-	-
0x0009	-	-	-	Available	F8427Q	-	-	0x005	raid_005	-	-	-

**6** Click the [Set] button.

IOA	Volume#	IOA	Volume#	IOA	Volume#	IOA	Volume#
0x00	0x0000	0x10	0x0010	0x20	0x0020	0x30	0x0030
0x01	0x0001	0x11	0x0011	0x21	0x0021	0x31	0x0031
0x02	0x0002	0x12	0x0012	0x22	0x0022	0x32	0x0032
0x03	0x0003	0x13	0x0013	0x23	0x0023	0x33	0x0033
0x04	0x0004	0x14	0x0014	0x24	0x0024	0x34	0x0034
0x05	0x0005	0x15	0x0015	0x25	0x0025	0x35	0x0035

→ The [Set IOA Mapping (LCU Selection)] screen appears.

**7** Click the [Set] button.

CU Logical Address	LCU #	OS Kind	SSID
0x00	0x00	Fujitsu	0x0002
0x01	0x01	Fujitsu	0x0004
0x02	0x02	Fujitsu	0x0006
0x03	0x03	Fujitsu	0x0008
0x0C	0x14	Fujitsu	0x002A
0x0D	0x15	Fujitsu	0x002C
0x0E	0x16	Fujitsu	0x002E

The CU Logical Address (LCU) in the following conditions is displayed with a yellow background.

- CU Logical Address where the LCU is added or changed.
- LCU where the IOA Mapping is added, changed, or deleted.

→ The [Set IOA Mapping (Check Setting)] screen appears.

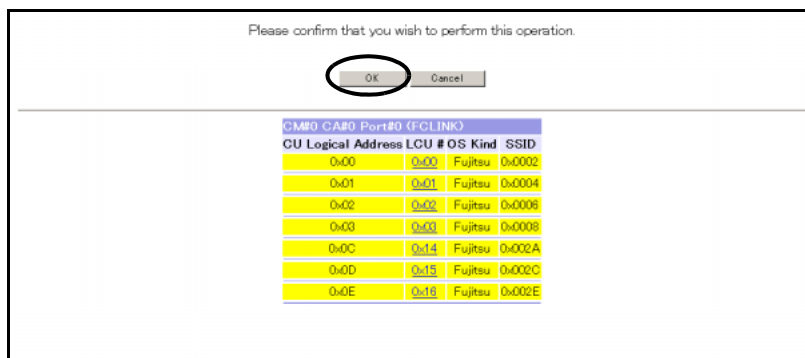


Note

Clicking the [LCU#] link displays the list of IOA Mapping in another window.

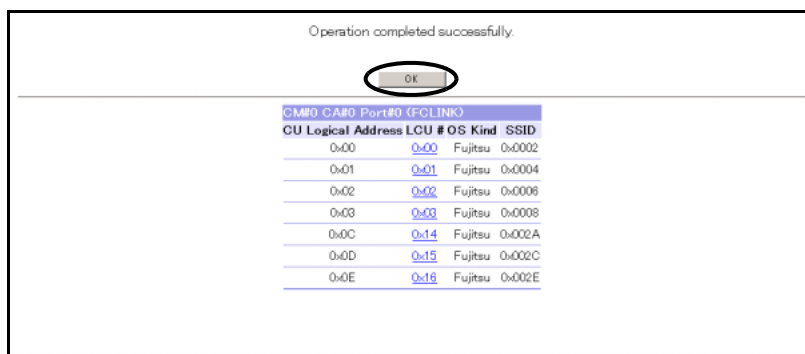
IOA	Volume#	IOA	Volume#	IOA	Volume#	IOA	Volume#
0x00	-	0x10	-	0x20	-	0x30	-
0x01	-	0x11	-	0x21	-	0x31	-
0x02	-	0x12	-	0x22	-	0x32	-
0x03	-	0x13	-	0x23	-	0x33	-
0x04	-	0x14	-	0x24	-	0x34	-
0x05	-	0x15	-	0x25	-	0x35	-
0x06	-	0x16	-	0x26	-	0x36	-
0x07	-	0x17	-	0x27	-	0x37	-
0x08	-	0x18	-	0x28	-	0x38	-
0x09	-	0x19	-	0x29	-	0x39	-
0x0A	-	0x1A	-	0x2A	-	0x3A	-
0x0B	-	0x1B	-	0x2B	-	0x3B	-
0x0C	-	0x1C	-	0x2C	-	0x3C	-

**8** Click the [OK] button.



→ Displays the [Set IOA Mapping (Updating Configuration Information)] screen. After the process is successfully completed, the [Set IOA Mapping (Setting Result)] screen appears.

**9** Click the [OK] button.



→ Returns to the [Set IOA Mapping (Initial)] screen.

End of procedure

### 5.4.10.2 Copy IOA Mapping

This section explains procedures to copy IOA Mapping.

#### Procedure

- 1 Click [Set IOA Mapping] under the Host Interface Management in the [Configuration] menu.  
 → The [Set IOA Mapping (Initial)] screen appears.

**Caution**

In the following cases, an error occurs and a message to that effect appears. Click [OK] button to return to the [Menu] screen.

- When no LCU is registered
- When no Mainframe Volume or MVV Volume is created in the ETERNUS DX8100/DX8400/DX8700
- When no OCLINK or FCLINK is installed

- 2** Select the CA Port to copy IOA Mapping (copy source), and click the [Copy] button.

Select a CA port.

CME0				CME1				CME2				CME3			
CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3
FCLINK	FC	ISCSI	ISCSI-RA	FCLINK	FC	ISCSI	ISCSI-RA	FC	FC8G	FCLINK	OCLINK	FC	FC8G	FCLINK	OCLINK
<input checked="" type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0	<input type="radio"/> #0
<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1	<input type="radio"/> #1
<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2	<input type="radio"/> #2
<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3	<input type="radio"/> #3

Set Copy Menu

→ The [Set IOA Mapping (Copy Destination CA Port Selection)] screen appears.

**Caution**

In the following cases, an error screen appears.

- When the [Copy] button is clicked without selecting CA Port
- When the [Copy] button is clicked with a CA Port selected, but there is no copy destination CA Port for the copy source CA Port.

- 3** Select copy destination CA Port(s) (multiple selections can be made), and click the [Paste] button.

Select the copy target CA port(s).

CME0				CME1				CME2				CME3			
CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3
<input checked="" type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0
<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1
<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2
<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3

Paste Return

The copy source CA Port is displayed with a yellow background.

→ The [Set IOA Mapping (Copy Check)] screen appears.

**Caution**

- Copying the IOA Mapping information of each LCU is allowed only for the same type CA and the same type OS. A checkbox is displayed for CA Ports available as copy destinations.
- When the copy function is used, the source CA Port's CU Logical Address, LCU information, and the IOA Mapping information for each LCU are all copied.
- When the [Paste] button is clicked without selecting a copy destination CA Port, an error screen appears.

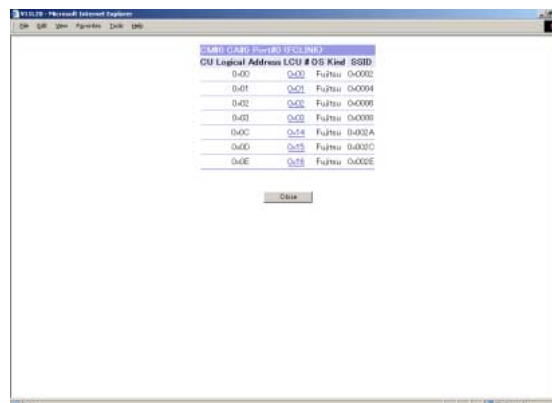
**4** Click the [OK] button.



→ Displays the [Set IOA Mapping (Copy Progress Check)] screen. After the process is successfully completed, the [Set IOA Mapping (Copy Result)] screen appears.

**Note**

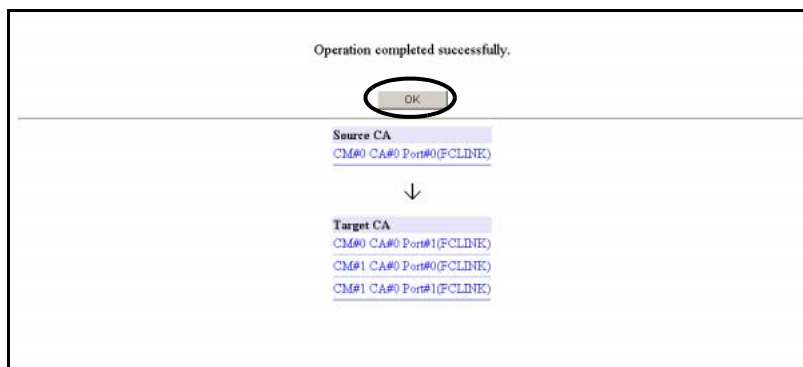
Clicking the [Source CA] link or [Target CA] link displays the LCU display of the CA Port in another window.



Clicking the [LCU #] link on the [Set IOA Mapping (LCU Display)] screen displays IOA Mapping List in another window.

IOA	Volume#	IOA	Volume#	IOA	Volume#	IOA	Volume#
0x00	-	0x10	-	0x20	-	0x30	-
0x01	-	0x11	-	0x21	-	0x31	-
0x02	-	0x12	-	0x22	-	0x32	-
0x03	-	0x13	-	0x23	-	0x33	-
0x04	-	0x14	-	0x24	-	0x34	-
0x05	-	0x15	-	0x25	-	0x35	-
0x06	-	0x16	-	0x26	-	0x36	-
0x07	-	0x17	-	0x27	-	0x37	-
0x08	-	0x18	-	0x28	-	0x38	-
0x09	-	0x19	-	0x29	-	0x39	-
0x0A	-	0x1A	-	0x2A	-	0x3A	-
0x0B	-	0x1B	-	0x2B	-	0x3B	-
0x0C	-	0x1C	-	0x2C	-	0x3C	-

**5** Click the [OK] button.



→ Returns to the [Set IOA Mapping (Initial)] screen.

**End of procedure**

### 5.4.11 Change RA Mode

This function changes the RA mode (CA: Channel Adapter, RA: Remote Adapter, or RFCF-RA) for each specific CA Port.

If the CA type is the same, the settings can be copied.

The only CA that can change RA Mode is FC.

**Caution**



- Change RA Mode
  - "FC-Initiator" for RA mode is not supported and cannot be selected.
  - When changing the CA Port Mode of a live CA Port from "CA" to "RA", or "RFCF-RA", it is necessary to stop the host access connected to the CA Port to be changed. To change the mode of a newly added CA Port, it is not necessary to stop the host access.
  - When changing the RA Port Mode of a live RA Port from "RA" to "CA", or "RFCF-RA", it is necessary to check that there is no session in the RA Port to be changed.
  - When changing the RFCF-RA Port Mode of a live RFCF-RA Port from "RFCF-RA" to "CA", or "RA", it is necessary to check that the Remote File Copy Facility-Expand (RFCF-EX) is not operating in the port to be changed. If RFCF-EX is in operation, changing the RA mode may result in errors, like performance degradation.
- Copy RA Mode
  - RA mode cannot be copied between FC with a maximum transfer speed of 8Gbit/s (FC8G) and FC with a maximum transfer speed of 4Gbit/s (FC4G). Select the same type of FC for the copy source and copy destination.
  - Before copying a RA Mode to a live CA port, RA port or RFCF-RA port, always check the current (old) RA Mode.  
When the copy destination RA mode is "CA", stop all host access to the CA Port.  
When the copy destination RA mode is "RA", check that the RA Port has no sessions. When the copy destination RA mode is "RFCF-RA", check that the Remote File Copy Facility-Expand (RFCF-EX) is not operating in the RFCF-RA Port.
  - When copying the RA mode to the CA Port of a newly added CA, it is not necessary to stop host access.
- RFCF-RA Mode
  - FC with a maximum transfer speed of 8Gbit/s (FC8G) cannot be changed from "CA" or "RA" to "RFCF-RA".
  - For the ETERNUS DX8400/DX8700, the RA mode can be changed from "CA" or "RA" to "RFCF-RA".  
For the ETERNUS DX410/DX440 and the ETERNUS DX8100, "RFCF-RA" is not displayed as the RA mode.
  - A 2-port or 4-port FC-CA can be used for RFCF-EX.  
For ETERNUS DX8400, all the ports for FC-CA can be changed to RFCF-RA. However, for the ETERNUS DX8700, only Port#0 and Port#1 can be used as RFCF-RA. Port#2 and Port#3 cannot be used.
  - RFCF-EX uses the ports in pairs.  
If the port mode is changed from "CA", or "RA" to "RFCF-RA", the pair port mode of the selected port is automatically changed to "RFCF-RA". "Pair port" indicates Port#0 and Port#1, or Port#2 and Port#3. For example, if Port#0 or Port#1 is changed to "RFCF-RA" mode, both Port#0 and Port#1 are changed to "RFCF-RA" mode.

- 

Up to 32 ports can be specified for RFCF-RA mode.

- Change RA Mode
- Copy RA Mode

#### 5.4.11.1 Change RA Mode

## Procedure

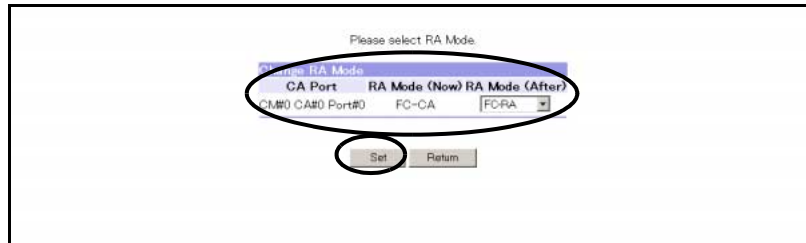
- Please select CA port to implement detailed settings
- | CM#0 |      |      |       | CM#1 |      |        |        | CM#2 |      |       |         | CM#3 |      |      |         |
|------|------|------|-------|------|------|--------|--------|------|------|-------|---------|------|------|------|---------|
| CA#0 | CA#1 | CA#2 | CA#3  | CA#0 | CA#1 | CA#2   | CA#3   | CA#0 | CA#1 | CA#2  | CA#3    | CA#0 | CA#1 | CA#2 | CA#3    |
| FC   | FC   | FC   | iSCSI | FC   | FC   | FCLINK | FCLINK | FC   | FC   | iSCSI | OC LINK | FC   | FC   | FC   | OC LINK |
| #0   | C #0 | C #0 |       | #0   | C #0 | C #0   | #0     | C #0 | C #0 | #0    |         | C #0 | C #0 | C #0 |         |
| #1   | C #1 | C #1 |       | #1   | C #1 | C #1   |        | C #1 | C #1 |       |         | C #1 | C #1 | C #1 | #0      |
| #2   | C #2 | C #2 |       | #2   | C #1 | C #1   | #1     | C #1 | C #1 | #1    | #1      | C #2 | C #2 | C #2 |         |
| #3   | C #3 | C #3 |       | #3   | C #3 | C #3   |        | C #3 | C #3 |       |         | C #3 | C #3 | C #3 |         |
- 

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**Caution** 

When the [Set] button is clicked without selecting CA Port, an error screen appears.

**3** Select the mode to change, and click the [Set] button.

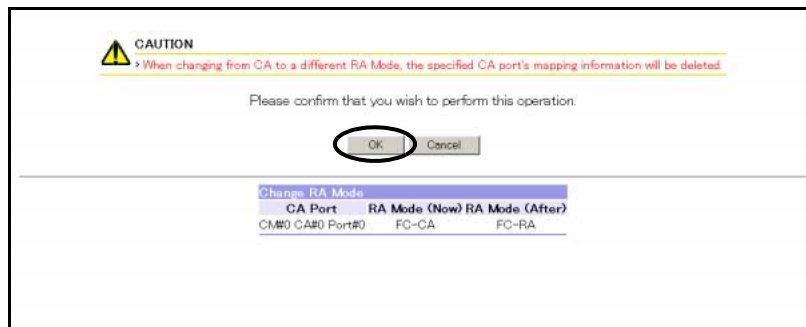


→ The [Change RA Mode (Change RA Mode Check)] screen appears.

**Caution** 

- When the RA mode is changed from "CA" to "RA", or "RFCF-RA", the mapping information will be deleted.  
When changing the CA Port Mode of a live CA Port, it is necessary to stop the host access to the CA Port to be changed.
- When the RA mode is changed from "RA" to "CA", or "RFCF-RA", the FC-RA path information will be deleted.  
When changing the RA Port Mode of a live RA Port, it is necessary to stop the session of the RA Port to be changed.
- When the RA mode is changed from "RFCF-RA" to "CA", or "RA", the RFCF-RA path information will be deleted.  
When changing the mode for RFCF-RA port in operation, make sure to stop the RFCF-EX for the RFCF-RA port to be changed.
- If the RA mode is changed from "CA" or "RA" to "RFCF-RA", the pair port mode of the selected port is automatically changed to "RFCF-RA". "Pair port" indicates Port#0 and Port#1, or Port#2 and Port#3.
- If the RA mode is changed from "RFCF-RA" to "CA" or "RA", the pair port mode of the selected port is automatically changed to "CA".
- If the [Set] button is clicked when the RFCF-RA port number exceeds 32, an error screen appears.
- For the ETERNUS DX8700, if the [Set] button is clicked when the "RFCF-RA" mode is specified to Port#2 or Port#3, an error screen appears.

**4** Click the [OK] button.



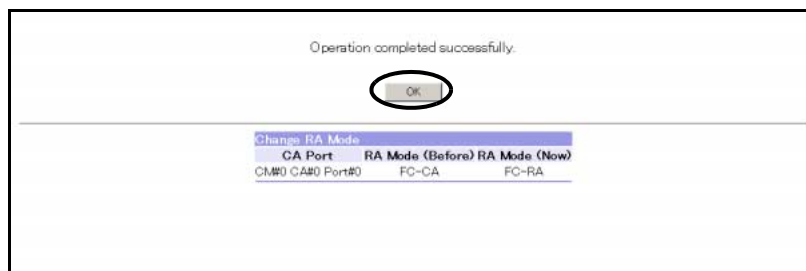
→ Displays the [Change RA Mode (Updating Configuration Information)] screen. After the process is successfully completed, the [Change RA Mode (Setting Result)] screen appears.



Note

When changing "RA" to "CA", or "RFCF-RA", if the FC-RA path information exists, the [Change RA Mode (FC-RA Path Configuration Information is Being Deleted)] screen is displayed before the [Change RA Mode (Updating Configuration Information)] screen is displayed.

**5** Click the [OK] button.



→ Returns to the [Change RA Mode (Initial)] screen.

End of procedure

### 5.4.11.2 Copy RA Mode

This section explains procedures to copy RA mode.

#### Procedure

- 1 Click [Change RA Mode] under the Host Interface Management in the [Configuration] menu.  
 → The [Change RA Mode (Initial)] screen appears.

**2** Select the CA Port to copy RA mode (Copy Source), and click the [Copy] button.

Please select CA port to implement detailed settings

CM#0				CM#1				CM#2				CM#3			
CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3
FC	FC	FC	iSCSI	FC	FC	FCLINK	FCLINK	FC	FC	iSCSI	OCLINK	FC	FC	FC	OCLINK
#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0
#1	#1	#1	#1	#1	#1	#1	#1	#1	#1	#1	#1	#1	#1	#1	#1
#2	#2	#2	#2	#2	#2	#2	#2	#2	#2	#2	#2	#2	#2	#2	#2
#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3

Set Copy Menu

→ The [Switch RA Mode (Copy Destination CA Selection)] screen appears.

**Caution**

- When the [Copy] button is clicked without selecting CA, an error screen appears.
- If the [Copy] button is clicked when the RFCF-RA port cannot be copied, an error screen appears.

**3** Select Copy Destination CA Port (multiple selections can be made), and click the [Paste] button.

The copy source CA Port is displayed with a yellow background.

Please select destination CA port (allow multiple selections)  
Copy Origin: FC-CA

CM#0				CM#1				CM#2				CM#3			
CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3	CA#0	CA#1	CA#2	CA#3
FC	FC	FC	iSCSI	FC	FC	FCLINK	FCLINK	FC	FC	iSCSI	OCLINK	FC	FC	FC	OCLINK
#0	<input checked="" type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0	<input type="checkbox"/> #0
#1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1	<input type="checkbox"/> #1
#2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2	<input type="checkbox"/> #2
#3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3	<input type="checkbox"/> #3

Paste Return

→ The [Change RA Mode (Copy Check)] screen appears.

**Caution**

- When the copy source is FC4G-CA Port, checkboxes are not displayed for FC8G-CA Ports.
- When the copy source is FC8G-CA Port, checkboxes are not displayed for FC4G-CA Ports.
- When the RA mode is changed from "CA" to "RA" or "RFCF-RA" using the copy function, the mapping information will be deleted. When changing the CA Port Mode of a live CA Port, it is necessary to stop the host access to the CA Port to be changed.

- When the RA mode is changed from "RA" to "CA" or "RFCF-RA" using the copy function, the FC-RA path information will be deleted.

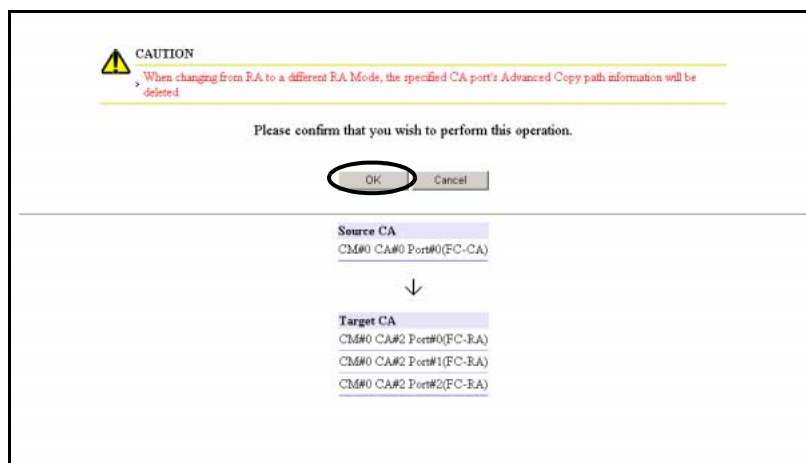
When changing the RA Port Mode of a live RA Port, it is necessary to stop the session of the RA Port to be changed.

- When the RA mode is changed from "RFCF-RA" to "CA" or "RA" using the copy function, the RFCF-RA path information will be deleted.

When changing the mode for RFCF-RA port in operation, make sure to stop the RFCF-EX for the RFCF-RA port to be changed.

- If the "RFCF-RA" port is copied to the "CA" or "RA" port, the "RFCF-RA" port is automatically copied to the pair port of the specified copy destination port. "Pair port" indicates Port#0 and Port#1, or Port#2 and Port#3.
- If the "CA" or "RA" port is copied to "RFCF-RA" port, the pair port of the specified copy destination port is automatically changed to "CA" mode.
- If the [Paste] button is clicked when the RFCF-RA port number exceeds 32, an error screen appears.
- For the ETERNUS DX8700, if the [Paste] button is clicked when Port#2 or Port#3 is specified as the copy destination of the RFCF-RA port, an error screen appears.
- When the [Paste] button is clicked without selecting a copy destination CA Port, an error screen appears.

#### 4 Click the [OK] button.



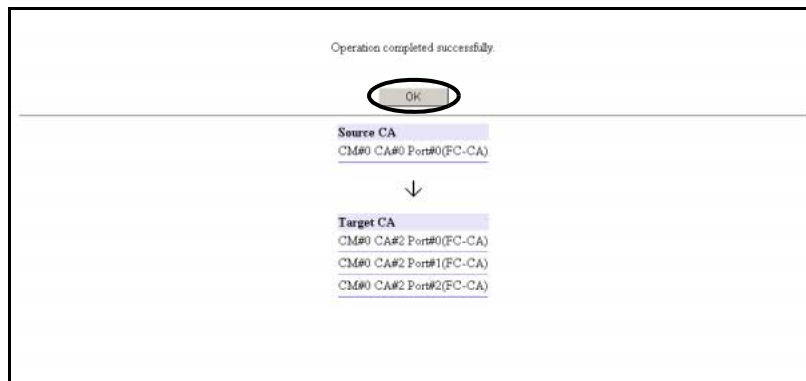
→ Displays the [Change RA Mode (Updating Configuration Information)] screen. After the process is successfully completed, the [Change RA Mode (Copy Result)] screen appears.



#### Note

When changing "RA" to "CA" or "RFCF-RA", using the copy function, if the FC-RA path information exists, the [Change RA Mode (FC-RA Path Configuration Information is Being Deleted)] screen is displayed before the [Change RA Mode (Updating Configuration Information)] screen is displayed.

**5** Click the [OK] button.



→ Returns to the [Change RA Mode (Initial)] screen.

**End of procedure**

## 5.4.12 Release Reservation

This function releases Reservation status (volume occupation) and deletes the Reservation Key that is specified by the server.

Usually, volumes are reserved or released (volume occupation/release occupation) by the server. [Release Reservation] function is used only when the server fails and the volume occupation cannot be released.

The following are the [Release Reservation] functions.

- Release the Reservation status of the volume
- Release the Persistent Reservation status of the volume
- Delete all the Reservation Keys registered in the ETERNUS DX400/DX8000 series

Reservation status of Open Volumes (Open/SDV/TPV/MVV) can be released.

**Caution**

- By using the [Release Reservation] function, volume occupation can be released from the ETERNUSmgr instead of the server. This function must be used only when the volume occupation cannot be released from the server. Be careful when using this function.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, volumes in which Reservation status can be released, and volumes in which Reservation Keys can be deleted differ depending on the current user account.
  - When logged on using a Total Administrator account, all the volumes in Reservation status that are assigned to Resource Domains can be released, and Reservation Keys of all the volumes that are assigned to Resource Domains can be deleted.

- When logged on using a Resource Domain Administrator account, the volumes in Reservation status that are assigned to the relevant Resource Domain, and the volumes in Reservation status that are assigned to the Shared Resource, can be released. In addition, Reservation Keys of volumes that are assigned to the relevant Resource Domain, and Reservation Keys of volumes that are assigned to the Shared Resource, can be deleted.

The following explains the release Reservation setting procedures.

## Procedure

- 1 Click [Release Reservation] under the Host Interface Management in the [Configuration] menu.  
 → The [Release Reservation (Select Volume)] screen appears.  
 Refer to ["A.23.1 Release Reservation \(Select Volume\) Screen" \(page 770\)](#) for screen details.

### Caution



When there is no Open Volume in Reservation status or Open Volume where the Reservation Key is registered, this function cannot be used.

- 2 Sets the selection method for choosing the volumes for release Reservation with radio buttons.

Logical Volume No.	Name	CA Port / Affinity Group	LUN	Registrants	Reservation Type	Persistent	APTPL
0x0000	vol_0000	CM#0 - CA#0 - Port#0	0x000	64	WE	Yes	Yes
0x0001	vol_0001	CM#0 - CA#0 - Port#1	0x001	1	EA	Yes	No
0x0002	vol_0002	CM#1 - CA#0 - Port#0	0x002	2	WE-RO	Yes	No
0x0003	vol_0003	CM#5 - CA#3 - Port#3	0x003	3	EA-RO	Yes	Yes
0x0004	vol_0004	CM#7 - CA#3 - Port#2	0x004	4	WE-AR	Yes	No
0x0005	vol_0005	CM#7 - CA#3 - Port#3	0x005	5	EA-AR	Yes	Yes
0x0006	vol_0006	0x000(AGNO0801)	0x006	6	-	No	No
0x0007	vol_0007	0x1FF	0x007	7	-	No	Yes
0x0008	vol_0008	-	-	8	-	-	No
0x0009	vol_0009	CM#4 - CA#0 - Port#1	0x009	0	-	No	No

☒ Select All Volume
 ☐ Select by unit of Volume

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- When [Select All Volume] is set  
 Click the [Execute] button.  
 → The [Release Reservation (Check)] screen appears with all the volumes selected.
- When the [Select by unit of Volume] is set  
 Check the checkbox for the corresponding volume to release the Reservation (multiple selections can be made) and click the [Execute] button.  
 → The [Release Reservation (Check)] screen appears with the corresponding volumes selected.

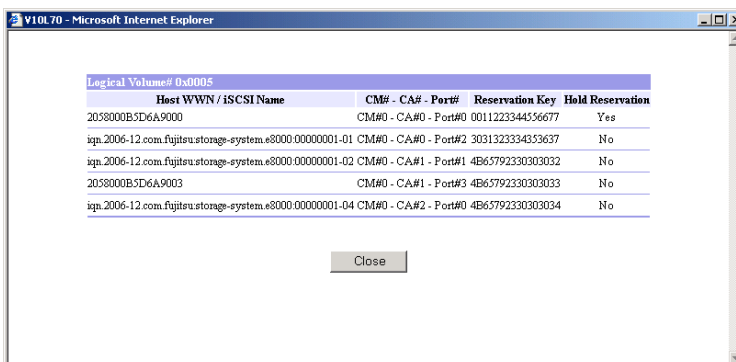
**Caution** 

When the [Select by unit of Volume] is set, and the [Execute] button is clicked without selecting the volumes to be released, an error screen appears.

 **Note**

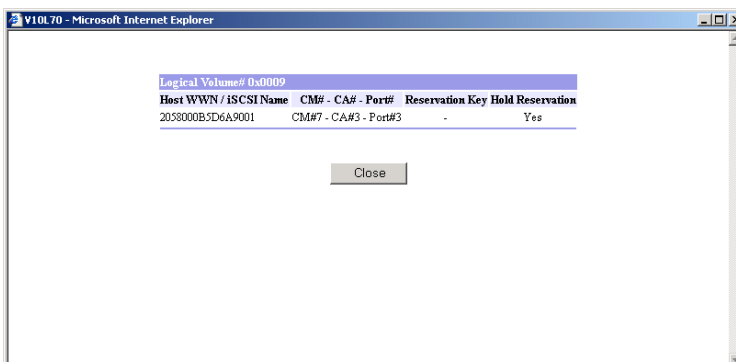
By clicking the [Logical Volume#] link on the [Release Reservation (Select Volume)] screen, information about hosts that can access the target volume is displayed in another window.

- When Reservation Keys exist



Host WWN / iSCSI Name	CM# - CA# - Port#	Reservation Key	Hold Reservation
2058000B5D6A9000	CM#0 - CA#0 - Port#0	0011223344556677	Yes
iqn.2006-12.com.fujitsu.storage-system.e8000.00000001-01	CM#0 - CA#0 - Port#2	3031323334353637	No
iqn.2006-12.com.fujitsu.storage-system.e8000.00000001-02	CM#0 - CA#1 - Port#1	4B65792330303032	No
2058000B5D6A9003	CM#0 - CA#1 - Port#3	4B65792330303033	No
iqn.2006-12.com.fujitsu.storage-system.e8000.00000001-04	CM#0 - CA#2 - Port#0	4B65792330303034	No

- When Reservation Keys do not exist



Host WWN / iSCSI Name	CM# - CA# - Port#	Reservation Key	Hold Reservation
2058000B5D6A9001	CM#7 - CA#3 - Port#3	-	Yes

Refer to ["A.23.2 Release Reservation \(Detail\) Screen" \(page 772\)](#) for details about setting items.

**3** Click the [OK] button.

Please confirm that you wish to perform this operation.

Logical Volume List to release								
No.	Name	CA Port / Affinity Group	LUN	Registrants	Reservation Type	Persistent	APTPL	
0x0000	vol_0000	CM#0 - CA#0 - Port#0	0x000	64	WE	Yes	Yes	
0x0001	vol_0001	CM#0 - CA#0 - Port#1	0x001	1	EA	Yes	No	
0x0002	vol_0002	CM#1 - CA#0 - Port#0	0x002	2	WE-RO	Yes	No	
0x0003	vol_0003	CM#6 - CA#3 - Port#3	0x003	3	EA-RO	Yes	Yes	
0x0004	vol_0004	CM#7 - CA#3 - Port#2	0x004	4	WE-AR	Yes	No	
0x0005	vol_0005	CM#7 - CA#3 - Port#3	0x005	5	EA-AR	Yes	Yes	
0x0006	vol_0006	0x00XAGND0801)	0x006	6	-	No	No	
0x0007	vol_0007	0x1FF	0x007	7	-	No	Yes	
0x0008	vol_0008	-	-	8	-	No	No	
0x0009	vol_0009	CM#4 - CA#0 - Port#1	0x009	0	-	No	No	

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→ The [Release Reservation (Result)] screen appears.

**4** Click the [OK] button.

Operation completed successfully.

Released Logical Volume List								
No.	Name	CA Port / Affinity Group	LUN	Registrants	Reservation Type	Persistent	APTPL	
0x0000	vol_0000	CM#0 - CA#0 - Port#0	0x000	64	WE	Yes	Yes	
0x0001	vol_0001	CM#0 - CA#0 - Port#1	0x001	1	EA	Yes	No	
0x0002	vol_0002	CM#1 - CA#0 - Port#0	0x002	2	WE-RO	Yes	No	
0x0003	vol_0003	CM#6 - CA#3 - Port#3	0x003	3	EA-RO	Yes	Yes	
0x0004	vol_0004	CM#7 - CA#3 - Port#2	0x004	4	WE-AR	Yes	No	
0x0005	vol_0005	CM#7 - CA#3 - Port#3	0x005	5	EA-AR	Yes	Yes	
0x0006	vol_0006	0x00XAGND0801)	0x006	6	-	No	No	
0x0007	vol_0007	0x1FF	0x007	7	-	No	Yes	
0x0008	vol_0008	-	-	8	-	No	No	
0x0009	vol_0009	CM#4 - CA#0 - Port#1	0x009	0	-	No	No	

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→ Returns to the [Menu] screen.

End of procedure

## Chapter 6 Settings Menu

This chapter describes the functions of the Settings menu.

### 6.1 Setting Configuration

#### 6.1.1 Set Configuration

This function sends and applies configuration/setting information exported using the [Export Configuration] function, configuration/setting information recorded in the device (1 time before or 2 times before), or the latest configuration information in the device.

**Caution**

- Do not execute this function during host access or during the Advanced Copy session (EC/OPC/REC).
- When [Set Configuration] is performed for an ETERNUS DX8100/DX8400/DX8700 that has Mainframe or MVV volumes, the volume management area is disabled, and performance may be temporarily degraded.
- Power Off/On of the ETERNUS DX400/DX8000 series is necessary to make the configuration information set by this function effective. The set configuration becomes effective after rebooting the ETERNUS DX400/DX8000 series.
- When selecting "Initialize", it is necessary to format all volumes after power Off/On the system. Volumes which have not been formatted cannot be used. Formatting is required for Thin Provisioning Pools even if no Thin Provisioning Volumes are created.
- When a volume exists during encryption, [Set Configuration] cannot be executed. Execute again after encryption is completed.
- In the following conditions, [Set Configuration] cannot be executed.
  - When an error occurs in the configuration information.
  - When the model setting in the configuration information and the actual ETERNUS DX400/DX8000 series model do not match.
  - When the encryption conditions (encrypted/non-encrypted) for each volume in the configuration information and the actual ETERNUS DX400/DX8000 series do not match.
  - When the "GS License" is not registered, but the configuration information contains a Mainframe volume or MVV volume.

- When the "Advanced Copy License" is not registered, but the configuration information contains a Snap Data Volume (SDV), Snap Data Pool Volume (SDPV), or REC Disk Buffer.
- When the "Thin Provisioning License" is not registered, but the configuration information contains a Thin Provisioning Volume (TPV) or Thin Provisioning Pool (TPP).
- When the "Encryption Mode" is disabled, but the configuration information contains encrypted volumes or encrypted TPPs.
- When the REC Disk Buffer setting which related with REC Buffer in the ETERNUS DX400/DX8000 series do not match the settings in the configuration information.
- When the SDP capacity in the configuration information exceeds the maximum SDP capacity available for the relevant ETERNUS DX400/DX8000 series.
- When the configuration information contains unknown parameters.
- When the Thin Provisioning Pool (TPP) capacity in configuration information exceeds the maximum TPP capacity available for the relevant ETERNUS DX400/DX8000 series.
- When the Thin Provisioning Pool Settings in the configuration information do not contain device configuration (when selecting "Restore").
- When the configuration information contains a CM that has failed in the ETERNUS DX400/DX8000 series.
- When logged on using a Resource Domain Administrator account, the [Set Configuration] menu is not displayed.

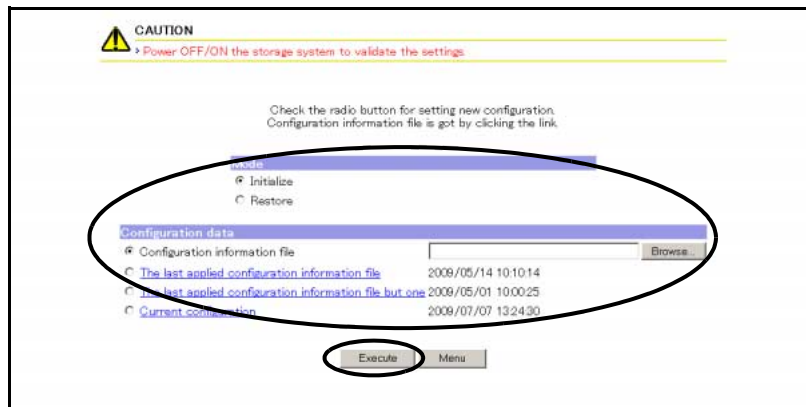
---

The following explains the procedures for [Set Configuration].

## Procedure

- 1** Click [Set Configuration] under the Setting Configuration in the [Settings] menu.  
→ The [Set Configuration (Initial)] screen appears.
- 2** Specify the mode and configuration information to apply, and click the [Execute] button.  
Set the following items.
  - Mode  
Select from the following.
    - Initialize  
Configures the device by applying the newly created or modified configuration information file.
    - Restore  
Applies the configuration information file, the same as the current configuration information file, to the device, and restores the former device configuration.

- Configuration data  
Select from the following.
  - Configuration information file  
Transfers and applies any configuration data file selected by ETERNUSmgr.
  - The last applied configuration information file  
Applies the configuration information recorded in the device.
  - The last applied configuration information file but one  
Applies the configuration information recorded in the device.
  - Current configuration  
Applies the configuration information recorded in the device.

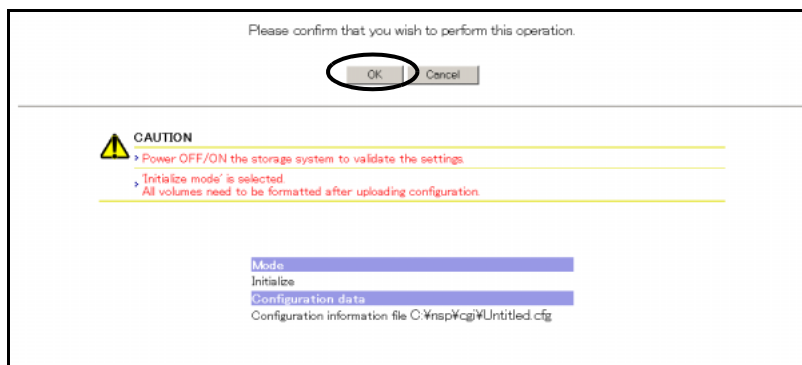


→ The [Set Configuration (Check)] screen appears.

**Caution**

- When downloading the configuration information file, click "The last applied configuration information file", "The last applied configuration information file but one", or "Current configuration" link.  
To save a configuration information file, save the file within one minute after clicking each link. If the download dialog box is left open for over a minute, the file saving operation may be terminated and the file may not be downloaded successfully. If the downloaded file cannot be opened, the download has failed, try the download again.
- If the [Initialize] is selected in Mode, all of the volumes must be formatted after rebooting the device.
- If there are no previous configurations, such as "The last applied configuration information file" or "The last applied configuration information file but one", they are not displayed for selection.
- To save a configuration information file, change the extension of the file to ".cfg".
- In the following conditions, an error screen appears.
  - When no configuration information file is selected
  - When no data exists in the configuration information file
  - When the configuration information file is in File Size Error status
  - When the configuration information file is abnormal

**3** Click the [OK] button.

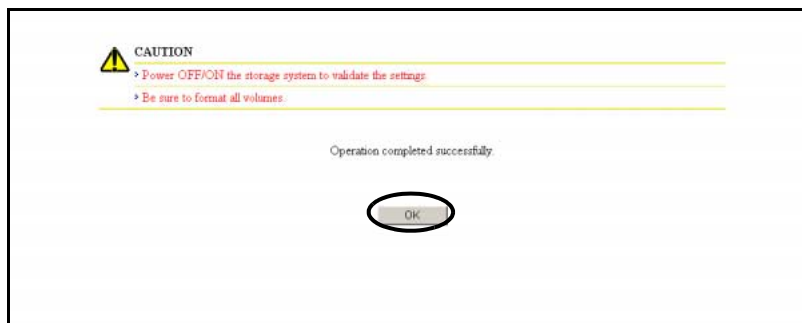


→ The [Set Configuration (Application Processing)] screen appears.  
When the application processing completes, the [Set Configuration (Complete)] screen appears.

**Caution**

- When there is an error in the configuration information file, an error screen appears.
- Rebooting the device is necessary to make the settings effective.
- When selecting Initialize, it is necessary to format all volumes after rebooting the device. Even if there are no Thin Provisioning Volumes in the Thin Provisioning Pool, formatting is required.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

**End of procedure**

## 6.2 Sub System Parameter

### 6.2.1 Set Sub System Parameters

On this screen, set sub system parameters.

"Sub system parameters" are the ETERNUS DX400/DX8000 series specific information that controls ETERNUS DX400/DX8000 series when connecting to hosts. Required sub system parameters vary depending on the types of hosts to connect to. When multiple hosts are connected to the ETERNUS DX400/DX8000 series, the ETERNUS DX400/DX8000 series operates for the hosts in accordance with these sub system parameters.

[Set Sub System Parameters] provides functions to set these sub system parameters while the ETERNUS DX400/DX8000 series is running.

#### Caution

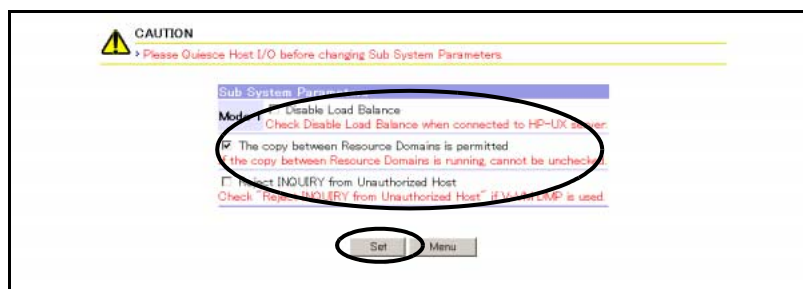


To set the sub system parameters using this function, set them after stopping all host access.

The following explains the setting procedures for sub system parameters.

#### Procedure

- 1 Click [Set Sub System Parameters] under the Sub System Parameter in the [Settings] menu.  
→ The [Set Sub System Parameters (Initial)] screen appears.  
Refer to ["A.24.1 Set Sub System Parameters \(Initial\) Screen" \(page 773\)](#) for screen details.
- 2 Set the sub system parameters to be changed, and click the [Set] button.

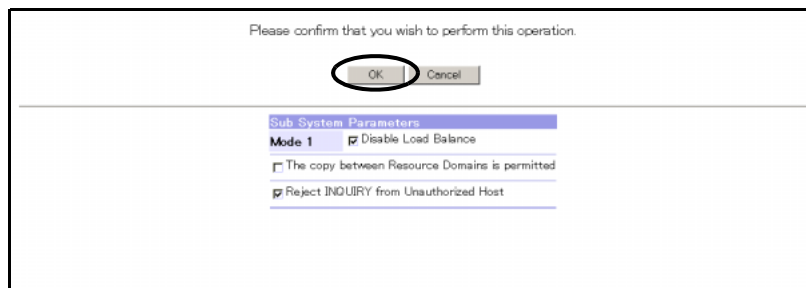


→ The [Set Sub System Parameters (Setting Check)] screen appears.

**Caution** 

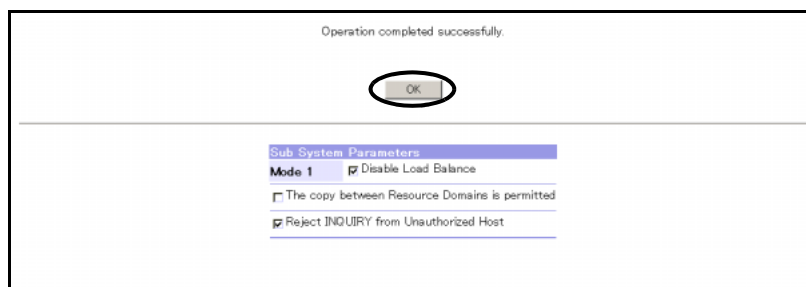
- Only the [Disable Load Balance], [The copy between Resource Domains is permitted], and [Reject INQUIRY from Unauthorized Host] sub system parameters can be changed. Other sub system parameters will not be displayed.
- When [Disable Load Balance] is checked, the load balance will be disabled to all servers connected to the device. If an overload occurs in this state, the overload response sense is not returned to all servers including HP-UX.
- [Disable Load Balance] is not related to the load balance using the Multipath Driver. The load balance using the Multipath Driver does not operate together with Enabled/Disabled of the [Disable Load Balance].

**3** Click the [OK] button.



→ The [Set Sub System Parameters (Updating Configuration Information)] screen appears, and when the operation completes successfully, the [Set Sub System Parameters (Setting Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

**End of procedure**

## 6.3 Advanced Copy Settings

The following functions can be set using this menu.

- Set EC/OPC Priority
- Set REC Priority
- Stop EC/OPC Session
- Stop REC Session
- Set Advanced Copy Table Size
- Register Advanced Copy License
- Set REC Buffer
- Set REC Disk Buffer
- Format REC Disk Buffer
- Delete REC Disk Buffer
- Set Advanced Copy Event Notification

### Caution



To access the Advanced Copy functions, register the Advanced Copy License. The following menu is not available until the license has been registered:

- Status
  - Advanced Copy Status
- RAID Setting
  - Set Snap Data Pool
  - Initialize Snap Data Volume
- Advanced Copy Settings
  - Set EC/OPC Priority
  - Set REC Priority
  - Stop EC/OPC Session
  - Stop REC Session
  - Set Advanced Copy Table Size
  - Set REC Buffer
  - Set REC Disk Buffer
  - Format REC Disk Buffer
  - Delete REC Disk Buffer
  - Set Advanced Copy Event Notification
- Remote Advanced Copy Configuration
  - Export Advanced Copy Information
  - Create Advanced Copy Information
  - Set Advanced Copy Path
  - Check Advanced Copy Path

Each function is described below.

### 6.3.1 Set EC/OPC Priority

This function sets the copy execution speed for the Equivalent Copy (EC) and One Point Copy (OPC).

The EC/OPC speed is usually set in consideration of the host's I/O load and the load of the copy processing. The set speed of EC/OPC becomes effective when the next session is begun.

#### Caution

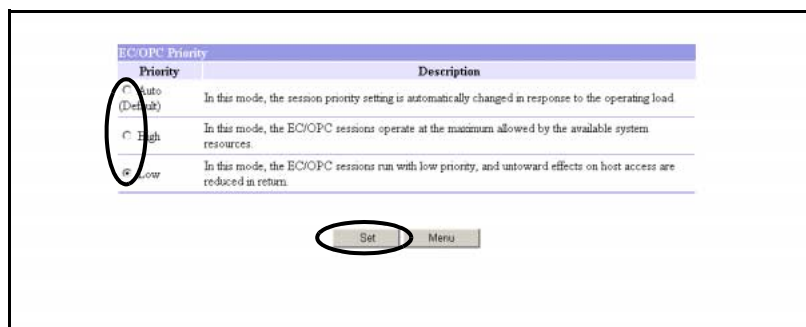


In order to use EC or OPC, the purchase of a license is required. Register necessary information by using the [Register Advanced Copy License] function after purchasing an Advanced Copy license. Copy related menus other than [Register Advanced Copy License] is not available until the license has been registered.

The following explains the operating procedures of Set EC/OPC Priority.

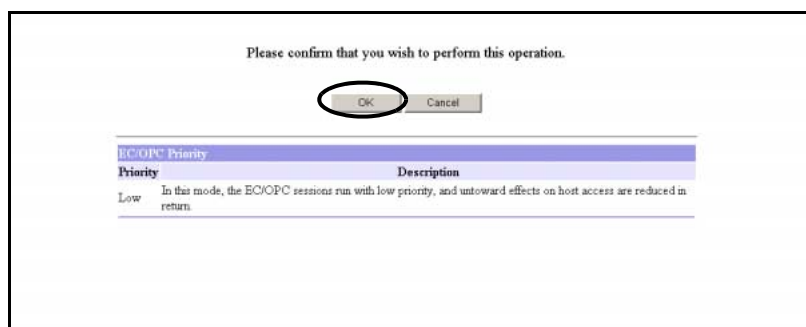
#### Procedure

- 1 Click [Set EC/OPC Priority] under the Advanced Copy Settings in the [Settings] menu.  
→ The [Set EC/OPC Priority (Initial)] screen appears.
- 2 Select priority, and click the [Set] button.



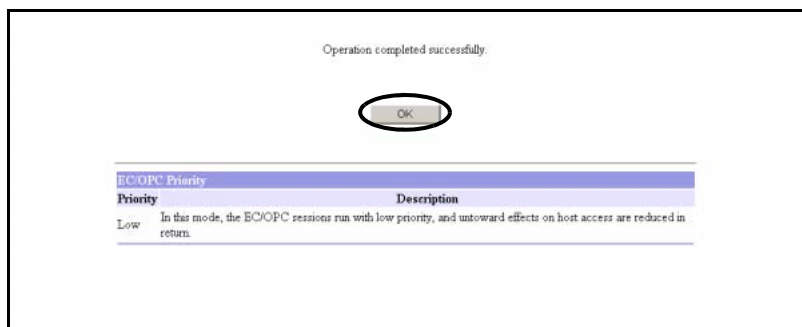
→ The [Set EC/OPC Priority (Setting Check)] screen appears.

- 3 Click the [OK] button.



→ The [Set EC/OPC Priority (Setting Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 6.3.2 Set REC Priority

This function sets the parameters for using the line efficiently for Remote Equivalent Copy (REC).

The specified parameters are used to adjust the amount of transfer data, and are enabled immediately.

**Caution**



- To use REC, the purchase of a license is required. Register necessary information by using the [Register Advanced Copy License] function after purchasing an Advanced Copy license. Copy related menus other than [Register Advanced Copy License] is not available until the license has been registered.
- Each networking device does not operate based on the parameter values set in the [Set REC Priority] function. Specified values are used as information for using the line efficiently.
- The REC Priority must be set when the remote device and the local device are physically connected.
- REC operates using the speed information set in the copy source ETERNUS DX400/DX8000 series.
- "Suspend" the session status between devices before executing the [Set REC Priority] function in the following conditions. For other conditions, it is not necessary to change the session status.
  - When changing the connection type (Direct Connection/Remote Connection)
  - When clicking the [Refresh] button to measure the response time again in the Remote Connection
- When the REC speed information is not set or [Connection Type] is [Direct Connection], REC is operated by the EC/OPC priority information.
- When logged on using a Resource Domain Administrator account, the [Set REC Priority] menu is not displayed.

The following explains the operating procedures of Set REC Priority.

## Procedure

- 1 Click [Set REC Priority] under the Advanced Copy Settings in the [Settings] menu.  
→ The [Set REC Priority (Initial)] screen appears.

### Caution

When no remote device is registered in the ETERNUS DX400/DX8000 series, a message to that effect is displayed. Click [OK] button to return to the [Menu] screen.

- 2 Click the Box ID of the remote device to perform priority setting.



→ The [Set REC Priority (Speed Setting)] screen appears.  
Refer to ["A.25.1 Set REC Priority \(Speed Setting\) Screen" \(page 775\)](#) for screen details.

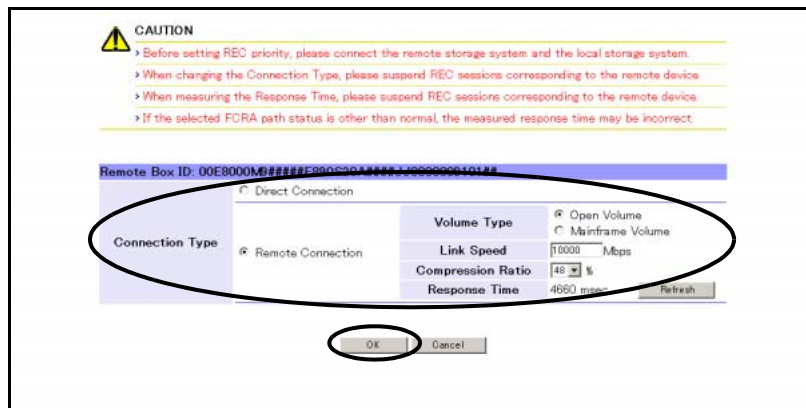
### Caution

"Suspend" the session status between devices before executing the [Set REC Priority] function in the following conditions. For other conditions, it is not necessary to change the session status. You can check the REC sessions by [Advanced Copy Status] function.

- When changing the connection type (Direct Connection/Remote Connection)
- When clicking the [Refresh] button to measure the response time again in the Remote Connection

- 3 Select the connection type, and click the [OK] button.  
In the case of remote connection, specify the following items.
  - Volume Type  
Specify the Volume Type to be copied.
  - Link Speed  
Specify the real transfer rate of the line that the local device uses (bandwidth usable in REC).
  - Compression Ratio  
Specify the average compression rate of transfer data for the networking device's compression function.

- **Response Time**  
Specify the response time between the local device and the remote device.



→ The [Set REC Priority (Initial)] screen appears.

**Caution**

- If the Open Volumes and Mainframe Volumes coexist, select Open Volume for "Volume Type".
- When the link speed is not a numerical value of 1 to 65535, an error screen appears.
- If an error is detected in the path, the response time may not be measured correctly.
- The specified settings are not updated in the ETERNUS DX400/DX8000 series when the [OK] button is clicked. Make sure to return to the [Set REC Priority (Initial)] screen and click the [Set] button to apply the new settings.

**Note**

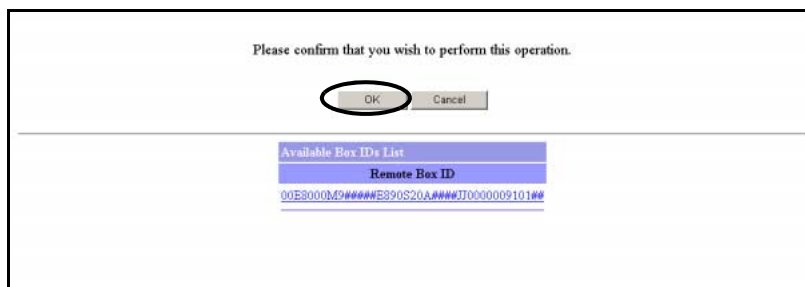
When you click the [Refresh] button, response time is measured again.

**4** Click the [Set] button.



→ The [Set REC Priority (Setting Check)] screen appears.

**5** Click the [OK] button.

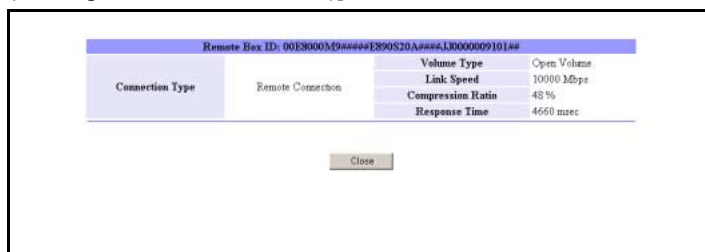


→ The [Set REC Priority (Setting Result)] screen appears.



Note

Clicking the [Remote Box ID] link displays the [Set REC Priority (Setting Information Details)] screen in another window.



**6** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 6.3.3 Stop EC/OPC Session

This function displays the status of processing Equivalent Copy (EC) and/or One Point Copy (OPC), and stops the selected EC/OPC sessions.

"Session" is a unit of the copy request. Use this function when the session cannot be stopped due to host failure.

#### Caution

- When there is no EC/OPC session, a message to that effect appears. Click the [OK] button to return to the [Menu] screen.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed EC/OPC sessions differ depending on the current user account.
  - When logged on using a Total Administrator account, all the EC/OPC sessions that are currently performed in the ETERNUS DX400/DX8000 series are displayed.
  - When logged on using a Resource Domain Administrator account, EC/OPC sessions that are currently performed in the ETERNUS DX400/DX8000 series, in which the copy sources or the copy destinations are volumes listed below, are displayed.
    - Volumes that are assigned to the relevant Resource Domain
    - Volumes that are assigned to the Shared Resource
    - Volumes that cannot be assigned to a Resource Domain (Mainframe Volumes)

The following explains the operating procedures to Stop EC/OPC Session.

#### Procedure

- 1 Click [Stop EC/OPC Session] under the Advanced Copy Settings in the [Settings] menu.
  - The [Stop EC/OPC Session (Initial)] screen appears.  
Refer to ["A.6.1 Advanced Copy Status \(EC Session List\) Screen" \(page 688\)](#), ["A.6.2 Advanced Copy Status \(OPC Session List\) Screen" \(page 690\)](#), and ["A.6.3 Advanced Copy Status \(EC Session Details/OPC Session Details\) Screen" \(page 693\)](#) for screen details.

## 2 Select the sessions to stop.

Use the following three methods to select sessions.

- Select Manually  
Stops the selected EC/OPC session.
- Select All  
Stops all EC/OPC sessions.
- Only Errors  
Stops all EC/OPC sessions in error status.

### Caution



When selecting [Select Manually], clicking the [Execute] button without selecting EC/OPC session by the checkbox shows the error screen.



### Note

- Clicking the [EC] button or the [OPC] button displays the information of EC session only or OPC session only. However, when there are no relevant sessions, a message to that effect is displayed.
- Clicking the [SID] link enables checking the detailed information of the relevant session.

**3** Click the [Execute] button.

☒ Select Manually   ☐ Select All   ☐ Only Errors

EC/OPC Session List														
SID	Type	Generation	Status	Error Code	Phase	Time sec.	Volume Type	From Vol.	To Vol.	Total Block	Completed Block	Tracking Block	SDP Used Block	Resolution
<input type="checkbox"/> 0x0000	EC	-	Active	0x00	Copying	64729	Open	0x0000	0x0001	536870812	67108964	-	-	x 2
<input type="checkbox"/> 0x0001	EC	-	Error	0x00	Copying	64729	Open	0x0002	0x0003	1073741824	25165824	-	-	x 2
<input type="checkbox"/> 0x0002	EC	-	Active	0x00	Copying	64729	Mainframe	0x0004	0x0008	536870812	16777216	-	-	-
<input type="checkbox"/> 0x0003	MDN	-	Active	0x00	Copying	0	Open	0x000A	-	1073741824	0	-	-	x 2
<input type="checkbox"/> 0x012C	OPC	-	Active	0x00	-	0	Mainframe	0x0131	0x0519	1048576	0	0	-	-
<input type="checkbox"/> 0x012D	OPC	-	Active	0x00	-	0	Open	0x0132	0x051A	1048576	0	0	-	x 8
<input type="checkbox"/> 0x012E	SOPC+	1/8	Active	0x00	-	0	Open	0x0133	0x051B	1048576	0	0	2097152	x 8
<input type="checkbox"/> 0x012F	SOPC+	2/8	Active	0x00	-	0	Open	0x0133	0x051C	1048576	0	0	0	x 8
<input type="checkbox"/> 0x0130	QOPC	-	Active	0x00	Copying	0	Open	0x0135	0x051D	1048576	0	0	-	x 8
<input type="checkbox"/> 0x0131	QOPC	-	Active	0x00	Copying	0	Mainframe	0x0136	0x051E	1048576	0	0	-	-

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→ The [Stop EC/OPC Session (Stop Check)] screen appears.

**4** Click the [OK] button.

 **CAUTION**  
 > When deleting SnapOPC+ session, the previous generation session will also be deleted.

Please confirm that you wish to perform this operation.

EC/OPC Session List														
SID	Type	Generation	Status	Error Code	Phase	Time sec.	Volume Type	From Vol.	To Vol.	Total Block	Completed Block	Tracking Block	SDP Used Block	Resolution
0x0001	EC	-	Error	0x00	Copying	64729	Open	0x0002	0x0003	1073741824	25165824	-	-	x 2
0x012D	OPC	-	Active	0x00	-	0	Open	0x0132	0x051A	1048576	0	0	-	x 8
0x012E	SOPC+	1/8	Active	0x00	-	0	Open	0x0133	0x051B	1048576	0	0	2097152	x 8
0x012F	SOPC+	2/8	Active	0x00	-	0	Open	0x0133	0x051C	1048576	0	0	0	x 8
0x0131	QOPC	-	Active	0x00	Copying	0	Mainframe	0x0136	0x051E	1048576	0	0	-	-
0x0133	QOPC	-	Active	0x00	Copying	0	Mainframe	0x0138	0x0520	1048576	0	0	-	-
0x0134	SOPC	-	Active	0x00	-	0	Open	0x0139	0x0521	1048576	0	0	0	x 8
0x0135	SOPC	-	Active	0x00	-	0	Open	0x013A	0x0522	1048576	0	0	0	x 8

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→ The [Stop EC/OPC Session (Stop Progress)] screen appears. After the process is successfully completed, the [Stop EC/OPC Session (Stopped Successfully)] screen appears.

**Caution** 

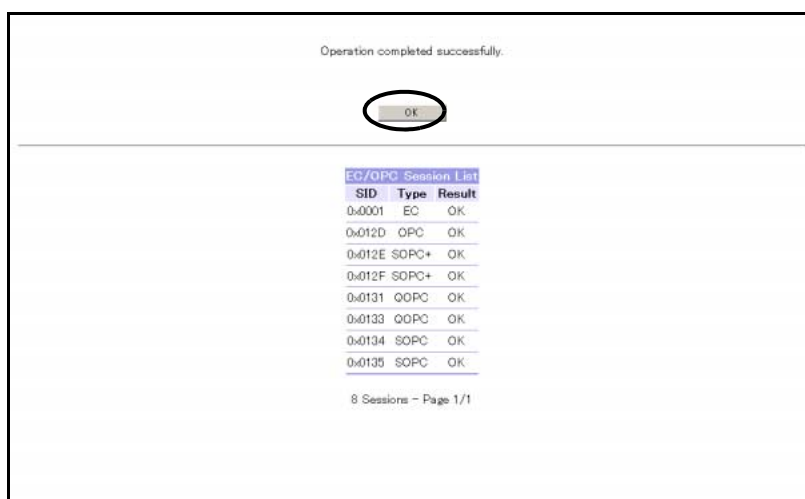
- When a S OPC+ session is stopped, all the S OPC+ sessions started earlier than the selected session are also stopped. S OPC+ sessions that have not been selected, but will be stopped anyway, are displayed with a yellow background.
- When an S OPC or S OPC+ session including an OPC Restoration session is stopped, an error occurs in the OPC Restoration session. The OPC Restoration sessions where errors will occur are displayed with a yellow background.
- When an S OPC+ session is stopped, an error occurs in the OPC Restoration session that started earlier than the selected session. The OPC Restoration sessions where errors will occur are displayed with a yellow background.



**Note**

If there are some sessions that fail to stop, a message to that effect is displayed.

**5** Click the [OK] button.



→ Returns to the [Menu] screen.

**End of procedure**

## 6.3.4 Stop REC Session

This function displays the status of processing Remote Equivalent Copy (REC), and stops the selected REC sessions.

"Session" is a unit of the copy request. Use this function when the session cannot be stopped due to host failure.

### Caution



- If there is no REC session, a message to that effect is displayed. Click [OK] button to return to the [Menu] screen.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed REC sessions differ depending on the current user account.
  - When logged on using a Total Administrator account, all the REC sessions that are currently performed in the ETERNUS DX400/DX8000 series are displayed.
  - When logged on using a Resource Domain Administrator account, REC sessions that are currently performed in the ETERNUS DX400/DX8000 series, in which the copy sources or the copy destinations are volumes listed below, are displayed.
    - Volumes that are assigned to the relevant Resource Domain
    - Volumes that are assigned to the Shared Resource
    - Volumes that cannot be assigned to a Resource Domain (Mainframe Volumes)

The following explains the operating procedures to Stop REC Session.

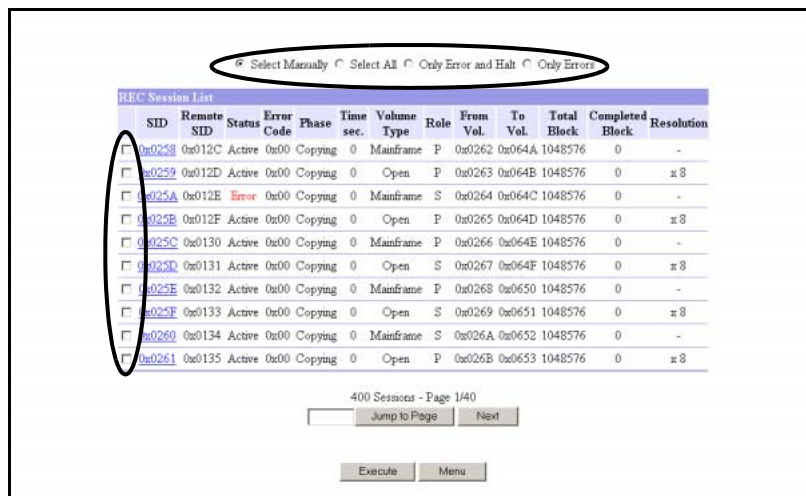
### Procedure

- 1 Click [Stop REC Session] under the Advanced Copy Settings in the [Settings] menu.
  - The [Stop REC Session (Initial)] screen appears.  
Refer to ["A.6.4 Advanced Copy Status \(REC Session List\) Screen" \(page 695\)](#), and ["A.6.5 Advanced Copy Status \(REC Session Details\) Screen" \(page 697\)](#) for screen details.

## 2 Select the sessions to stop.

Use the following four methods to select sessions.

- Select Manually  
Stops the selected REC session.
- Select All  
Stops all REC sessions.
- Only Error and Halt  
Stops all REC sessions during error and halt.
- Only Errors  
Stops all REC sessions in error status.



### Caution

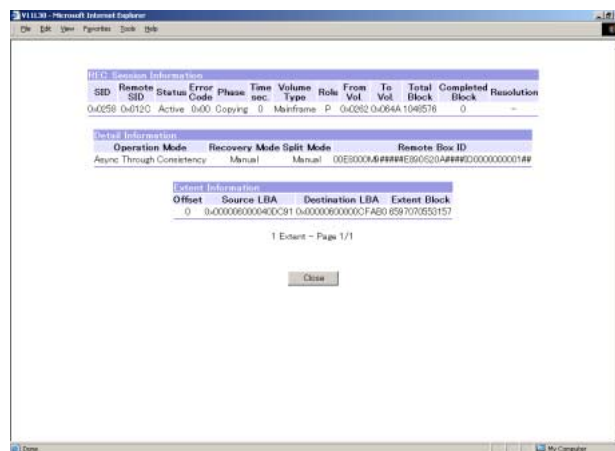


When [Select Manually] is selected, clicking the [Execute] button without selecting REC session by the checkbox shows the error screen.

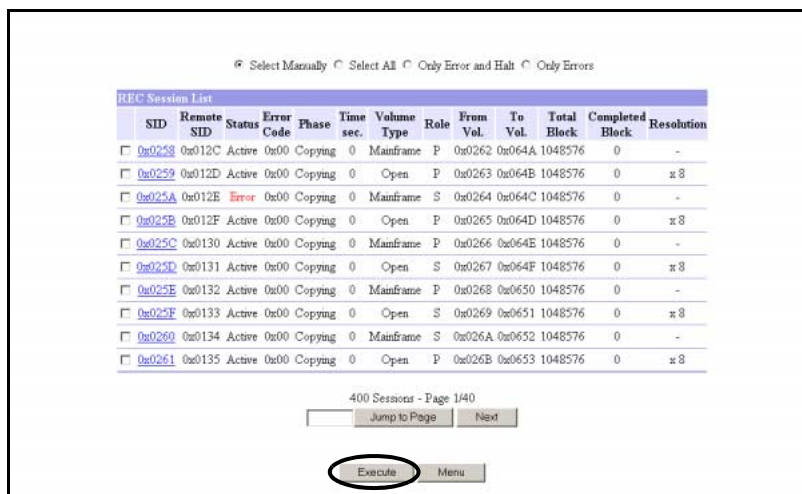


### Note

Clicking the [SID] link enables checking the detailed information of the relevant session.



**3** Click the [Execute] button.



→ The [Stop REC Session (Stop Check)] screen appears.

**4** Click the [OK] button.



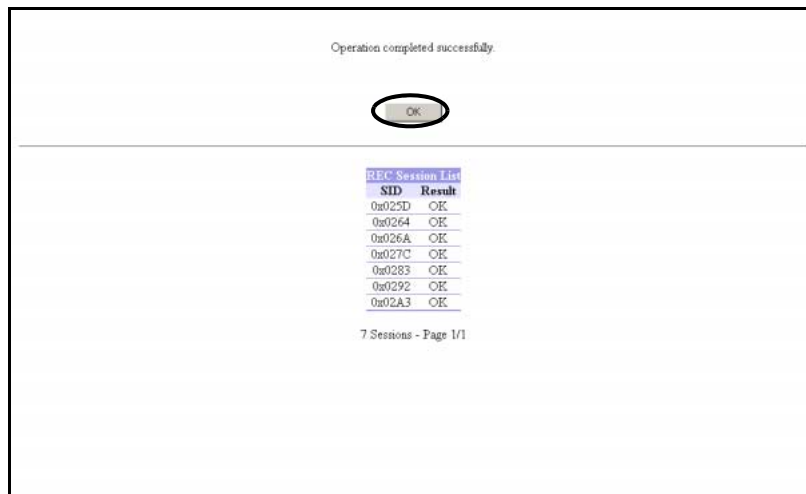
→ The [Stop REC Session (Stop Progress)] screen appears. After the process is successfully completed, the [Stop REC Session (Stopped Successfully)] screen appears.



Note

If there are some sessions that fail to stop, a message to that effect is displayed.

**5** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 6.3.5 Set Advanced Copy Table Size

This screen is used to set control table size, which is used by the device firmware on CM cache memory installed in the device, without stopping the device. When Equivalent Copy (EC), One Point Copy (OPC), or Remote Equivalent Copy (REC) functions are in use, this control table (hereafter: Advanced Copy table) is used to manage copy progress. Regardless of the installed cache memory size, the following capacity is prepared for the Advanced Copy table size in ETERNUS DX400/DX8000 series.

- ETERNUS DX410/DX440: maximum 136MB
- ETERNUS DX8100: maximum 136MB
- ETERNUS DX8400/DX8700: maximum 528MB

Changes to the Advanced Copy table size and resolution setting will be effective from the next session.

**Caution**

- Copy related menus other than [Register Advanced Copy License] is not available until the license has been registered.
- The purchase of a license and "ETERNUS SF AdvancedCopy Manager" are necessary in order to use EC/OPC/REC. Register necessary information by using the [Register Advanced Copy License] function after purchasing the Advanced Copy license.
- When the "Advanced Copy Table size" is "0 [MB]", copy functions (EC/OPC/REC) are not supported. In the initial setting (factory default), "Advanced Copy Table Size" is set to "0(MB)".

- Stop copy sessions (EC/OPC/REC) before decreasing the Advanced Copy table size. These sessions can be checked by using "ETERNUS SF AdvancedCopy Manager" or [Advanced Copy Status] function.
- When the Advanced Copy table size is not big enough, the Advanced Copy function cannot be used. Set an appropriate copy capacity as well as appropriate value calculated from the number of operating sessions for the Advanced Copy table size.
- Notice the following points when performing REC between ETERNUS DX400/DX8000 series and ETERNUS DX400/DX8000 series, ETERNUS4000, ETERNUS8000, or ETERNUS6000.
  - Set the "Resolution" of the devices which will be defined as copy source / copy destination to the same value. When the "Resolution" settings of the devices of copy source / copy destination are different, an error will occur when performing REC. It is not required to set "Advanced Copy table size" to the same value.  
When the "Resolution" calculated in the devices of copy source / copy destination are different, adjust the "Resolution" to the larger value. In this case, recalculate and set the "Advanced Copy table size" of the device in which "Resolution" was changed.
- Notice the following points when performing REC between ETERNUS DX400/DX8000 series and ETERNUS3000.
  - The copy source and copy destination devices must be set the same "Resolution" value.  
The resolutions of the ETERNUS DX410/DX440, ETERNUS DX8100/DX8400/DX8700, and ETERNUS3000 correspond as follows:

Model	Corresponding resolution (*1)				
ETERNUS DX410/DX440	1	2	4	8	16
ETERNUS DX8100/DX8400/ DX8700	1	2	4	8	16
ETERNUS3000 model 300/500/700	16	32	64	128	– (*2)

\*1: Resolution "1" for the ETERNUS DX400/DX8000 series corresponds to resolution "16" of the ETERNUS3000.

\*2: If resolution "16" is set for the ETERNUS DX400/DX8000 series, it is impossible to connect to the ETERNUS3000.

The following explains the setting procedures of Advanced Copy table size.

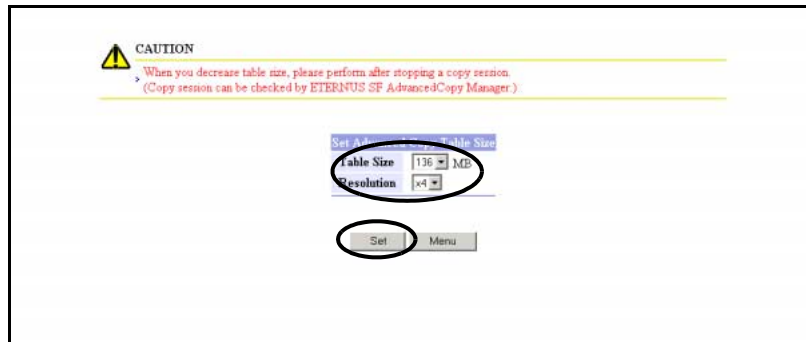
## Procedure

- 1 Click [Set Advanced Copy Table Size] under the Advanced Copy Settings in the [Settings] menu.  
→ The [Set Advanced Copy Table Size (Initial)] screen appears.  
Refer to ["A.26.1 Set Advanced Copy Table Size \(Initial\) Screen" \(page 777\)](#) for screen details.

**2** Set the following items, and click the [Set] button.

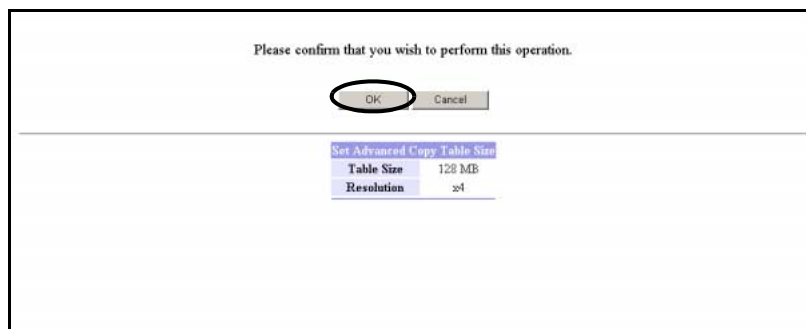
- Table Size
- Resolution

Calculate by using ["How to calculate the Advanced Copy Table Size" \(page 470\)](#).



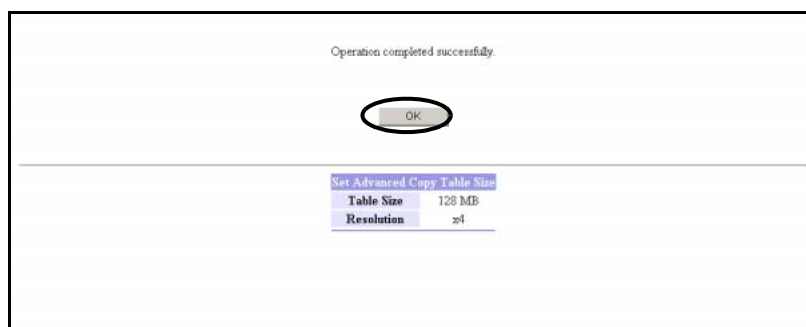
→ The [Set Advanced Copy Table Size (Setting Check)] screen appears.

**3** Click the [OK] button.



→ The [Set Advanced Copy Table Size (Setting)] screen appears, and when the operation completes successfully, the [Advanced Copy Table Size (Setting Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## ■ How to calculate the Advanced Copy Table Size

The size of Advanced Copy table and resolution are decided by the amount of copy data and the number of simultaneous active sessions (number of volumes).

Advanced Copy table size (S) [MB] =  
Open Volume EC/REC and Open Volume OPC/SnapOPC table size not for OPC Restoration (S1) [MB]  
+ Open Volume OPC/SnapOPC table size for OPC Restoration (S2) [MB]  
+ Open Volume QuickOPC table size not for OPC Restoration (S3) [MB]  
+ Open Volume QuickOPC table size for OPC Restoration (S4) [MB]  
+ Open Volume SnapOPC+ table size (S5) [MB]  
+ Mainframe Volume EC/OPC/REC table size (S6) [MB]

### Caution



- The required Advanced Copy table size setting is derived by rounding the value (S) obtained using the above equation up to the next multiple of eight.
- The above Advanced Copy table size formula should be applied to each CM.
- If the derived Advanced Copy table size value (S) exceeds the maximum allowed, use the Resolution (M) that produces the largest allowed Advanced Copy table size. Set the resolution (M) as small as possible.
- The maximum allowed Advanced Copy table sizes are as follows.
  - ETERNUS DX410/DX440:136MB
  - ETERNUS DX8100:136MB
  - ETERNUS DX8400/DX8700:528MB
- It is recommended to make allowance for possible future increases in the copy capacity when calculating the table size.

- Open Volume EC/REC and Open Volume OPC/SnapOPC not for OPC Restoration cases (S1)

M:Resolution

(The same value as used in the device. Set to "1" if possible.)

C1:Copy capacity for EC/REC and OPC/SnapOPC on Open Volumes (\*1) [GB]  
(where OPC/SnapOPC is not used for OPC Restoration)

N1:Number of sessions for EC/REC and OPC/SnapOPC on Open Volumes  
(where OPC/SnapOPC is not used for OPC Restoration)

$S1 [MB] = ((2 \times C1 / M) + N1) \times 8 [KB] / 1024$  (Round up decimal point)

- Open Volume OPC/SnapOPC for OPC Restoration case (S2)

M:Resolution

(The same value as used in the device. Set to "1" if possible.)

C2:Copy capacity for OPC/SnapOPC on Open Volumes (\*1) [GB]  
(where OPC/SnapOPC is used for OPC Restoration)

N2:Number of sessions for OPC/SnapOPC on Open Volumes  
(where OPC/SnapOPC is used for OPC Restoration)

$S2 [MB] = ((2 \times C2 / M) + N2) \times 2 \times 8 [KB] / 1024$  (Round up decimal point)

● Open Volume QuickOPC not for OPC Restoration case (S3)

M:Resolution

(The same value as used in the device. Set to "1" if possible.)

C3:Copy capacity for QuickOPC on Open Volumes (\*1) [GB]

(where QuickOPC is not used for OPC Restoration)

N3:Number of sessions for QuickOPC on Open Volumes

(where QuickOPC is not used for OPC Restoration)

$S3 [MB] = ((2 \times C3 / M) + N3) \times 2 \times 8 [KB] / 1024$  (Round up decimal point)

● Open Volume QuickOPC for OPC Restoration case (S4)

M:Resolution

(The same value as used in the device. Set to "1" if possible.)

C4:Copy capacity for QuickOPC on Open Volumes (\*1) [GB]

(where QuickOPC is used for OPC Restoration)

N4:Number of sessions for QuickOPC on Open Volumes

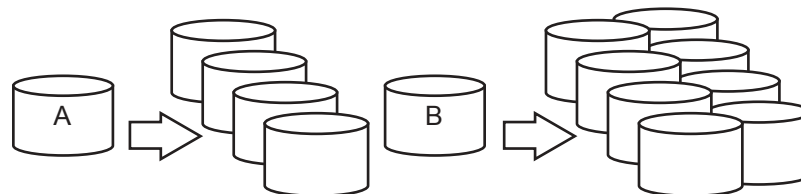
(where QuickOPC is used for OPC Restoration)

$S4 [MB] = ((2 \times C4 / M) + N4) \times 3 \times 8 [KB] / 1024$  (Round up decimal point)

\*1: For EC, OPC, QuickOPC, SnapOPC, or REC copy sources, the copy capacity is the total capacity of all volumes (slices or partitions) in the ETERNUS DX400/DX8000 series that are defined as copy sources. For REC copy destinations, the copy capacity is the total capacity of all volumes (slices or partitions) in the ETERNUS DX400/DX8000 series that are defined as copy destinations. If the same ETERNUS DX400/DX8000 series is used as both an EC, OPC, QuickOPC, SnapOPC, or REC copy source and a REC copy destination, the copy capacity value is the total capacity of all copy sources and copy destinations.

If the multi copy function is used, add the total capacity of the multi copy source volume (slices or partitions)  $\times$  the number of volumes in the multi copy destination for each multi copy source.

(Example)



• Multi copy target area in copy source volume A: 200 [MB]

Number of multi copy destination volumes: 4

• Multi copy target area in copy source volume B: 500 [MB]

Number of multi copy destination volumes: 8

Capacity of multi copy source =  $200 [MB] \times 4 + 500 [MB] \times 8 = 4800 [MB]$

→ Add the 4800 [MB] calculated above to the copy capacity C1 or C3 according to the copy type.

(For EC/OPC/SnapOPC/REC, add the value to C1. For QuickOPC, add the value to C3.)

Add the number of multi copy sessions to N3 when using QuickOPC, or to N1 for other copy functions. In this example, add [12 (= 4 + 8)] to the number of sessions N1 or N3 according to the copy type.

(For EC/OPC/SnapOPC/REC, add the value to N1. For QuickOPC, add the value to N3.)

For OPC Restoration on a multi-copy, select one of the copy destinations and apply the OPC Restoration formula. QuickOPC should be preferentially used if it is one of the multi-copy types. The other copy destinations should be calculated as normal multi-copy sessions.

**Caution** 

The calculation described above can be used for firmware versions V10L60 and later. When using SnapOPC with the firmware versions prior to V10L60, calculate the table size separately. For SnapOPC table size, use formula S1 or S2 with Resolution fixed to "1".

● Open Volume SnapOPC+ case (S5)

M:Resolution

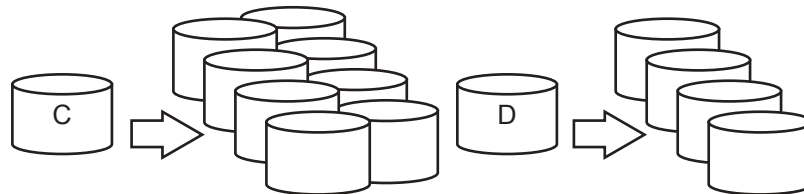
(The same value as used in the device. Set to "1" if possible.)

C5:Copy capacity for SnapOPC+ [GB](<sup>\*2</sup>)

N5Number of sessions for SnapOPC+ (total number of generations) (<sup>\*3</sup>)

$S5 \text{ [MB]} = ((2 \times C5 / M) + N5) \times 8 \text{ [KB]} / 1024$  (Round up decimal point)

<sup>\*2</sup>: Copy capacity indicates the total capacity of SnapOPC+ copy source volumes (slices or partitions)  $\times$  number of generations in a device.  
(Example)



- SnapOPC+ target area in copy source volume C: 200 [MB]

Number of SnapOPC+ generations: 8

- SnapOPC+ target area in copy source volume D: 500 [MB]

Number of SnapOPC+ generations: 4

Capacity of SnapOPC+ copy source = 200 [MB]  $\times$  8 + 500 [MB]  $\times$  4 = 3600 [MB]

→ 3600 [MB] derived above is the copy source capacity C5.

<sup>\*3</sup>: In this example, (N5) the total number of SnapOPC+ Sessions (all generations) is 8 + 4 = 12.

● Mainframe Volume EC/OPC/REC case (S6)

N6:Number of sessions for EC/OPC/REC on Mainframe Volumes

$S6 \text{ [MB]} = 16 \text{ [KB]} \times N6 / 1024$  (Round up decimal point)

## 6.3.6 Register Advanced Copy License

The Advanced Copy License can be registered in the ETERNUS DX400/DX8000 series.

The Advanced Copy function is an optional function offered for the ETERNUS DX400/DX8000 series. It is necessary to buy a license to use Advanced Copy. By purchasing this license, the License Label can be obtained.

The license information on the label can be registered to the ETERNUS DX400/DX8000 series using the [Register Advanced Copy License] function. When this registration is completed successfully, the user can use the Advanced Copy function.

**Caution** 

This license registration is also required when using the [Remote Advanced Copy (REC)] function.



Note

To use the [Advanced Copy (EC/OPC)] function or the [Remote Advanced Copy (REC)] function, [Set Advanced Copy Table Size] is required after registering this license.

The following explains the registration procedures for the Advanced Copy License.

## Procedure

- 1 Click [Register Advanced Copy License] under the Advanced Copy Settings in the [Settings] menu.  
→ The [Register Advanced Copy License (Initial)] screen appears.

### Caution



When the license has already been registered, a message to that effect is displayed.  
Click the [OK] button to return to the [Menu] screen.

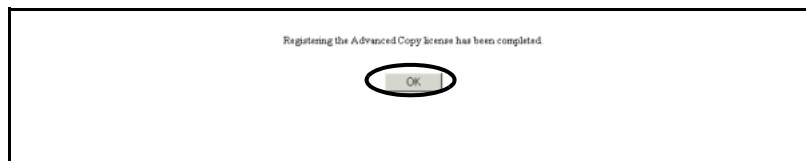
- 2 In order to register the Advanced Copy License, set the following items and click the [Set] button.
  - MODEL  
Enter the MODEL (Model Name) of the license number.
  - SER No.  
Enter the SER No. (Serial Number) of the license number.
  - CC  
Enter the CC (Check Code) of the license number.

→ When the [Register Advanced Copy License (Updating Configuration Information)] screen appears and the operation completes successfully, the [Register Advanced Copy License (Setting Result)] screen appears.

**Caution** 

- In the following cases, an error screen appears.
  - When either [MODEL], [SER No.], or [CC] is not entered and the [Set] button is clicked.
  - When entered value of [MODEL], [SER No.], and/or [CC] are out of range.
  - When the license number is wrong.
- Contact your maintenance engineer if an error occurs when the information on the license label is input correctly in the text box.

**3** Click the [OK] button.



→ Returns to the [Menu] screen.

**End of procedure**

### 6.3.7 Set REC Buffer

This function executes settings to copy data via REC Buffer.

When copying via REC Buffer, I/Os to multiple REC sessions are stored in the REC Buffer for a specific period of time and copy them in blocks. This enables mirroring the whole database, which was impossible under existing conditions, and speeds up the copy process during REC execution in remote locations thousands of kilometers apart. Note that a REC Buffer shortage may occur when there is a bad network situation or large amount of data updating. Assign the REC Disk Buffer to the REC Buffer as a temporarily saving destination for copy data to avoid these situations.

The REC Buffer can be used only when the device is connected to an open system host (REC Asynchronous Consistency Mode).

**Caution** 

- When a REC Buffer is set while logging on, the [Set REC Buffer (Updating Configuration Information)] screen appears.
- Before changing a REC Buffer, REC sessions which are using the relevant REC Buffer must be suspended.
- Before deleting a REC Buffer, REC sessions which are using the relevant REC Buffer must be suspended.
- When copying data via REC Buffer, a REC Buffer needs to be setup on both the copy source and copy destination. Make sure that the sizes of the copy source and copy destination REC Buffers are the same, as the excess capacity of the larger REC Buffer over the smaller will not be used.

- Before adding REC Disk Buffers, create RAID Groups for REC Disk Buffers using the [Create REC Disk Buffer] function.
- A REC Disk Buffer is used as a backup destination of a REC Buffer (Send). Note that it is not used for a REC Buffer (Receive).
- Note the following conditions when assigning REC Disk Buffers to the REC Buffer:
  - A single REC Disk Buffer cannot be assigned to multiple REC Buffers.
  - One, two, or four (one or two for ETERNUS DX410) REC Disk Buffers can be assigned to a single REC Buffer. When assigning multiple REC Disk Buffers to a single REC Buffer, the number of disks (4 or 8), disk type (FC or SSD), and encryption status (Yes or -) must be matched.
- When assigning multiple REC Disk Buffers to a single REC Buffer, the REC Disk Buffer capacity must be the same. If REC Disk Buffers of different capacities are assigned to a single REC Buffer, the smallest becomes the standard, and all other REC Disk Buffers are regarded as having the same capacity as the smallest REC Disk Buffer. In this case, the remaining REC Disk Buffer space will not be used.
- ETERNUS3000 does not support REC Asynchronous mode. When the remote device is ETERNUS3000, the REC Buffer cannot be created.
- REC Asynchronous Consistency Mode between ETERNUS DX400/DX8000 series and ETERNUS6000 is not supported. When the remote device is ETERNUS6000, the REC Buffer cannot be created.
- In the following conditions, [Set REC Buffer] cannot be used:
  - When no REC Buffer nor path is set (there is no remote device)
  - When no REC Buffer is set and the memory capacity for assigning the REC Buffer is insufficient
  - When the memory capacity differs for each installed CM (CPU)
- When logged on using a Resource Domain Administrator account, the [Set REC Buffer] menu is not displayed.



Note

When deleting a REC Buffer where the REC Disk Buffers have already been assigned, all the assigning information of the REC Buffer and REC Disk Buffer is deleted, but the REC Disk Buffers remain. In this case, the REC Disk Buffer is released from REC Buffers.

This section explains how to set the REC Buffers.  
The following settings are available.

- [Create/Change REC Buffer](#)
- [Delete REC Buffer](#)

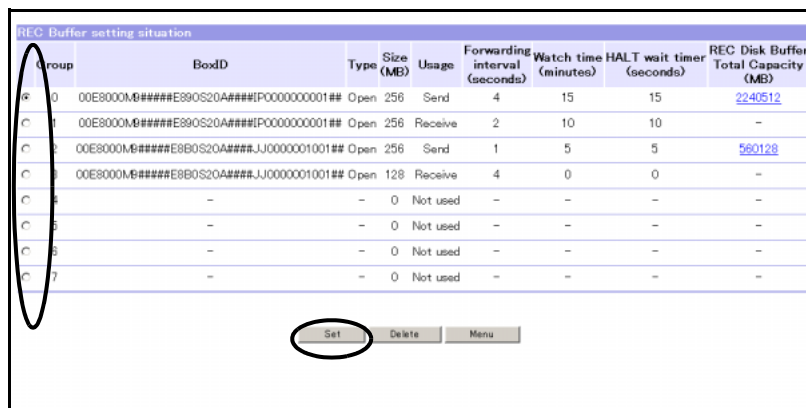
The procedures are explained in the following sections.

### 6.3.7.1 Create/Change REC Buffer

This section explains procedures to create/change REC Buffer.

#### Procedure

- 1 Click [Set REC Buffer] under the Advanced Copy Settings in the [Settings] menu.  
 → The [Set REC Buffer (Initial)] screen appears.
- 2 Select the radio button of the unused group number in which the REC Buffer is set, and click the [Set] button. Or select the radio button of the remote device in which the REC Buffer is changed, and click the [Set] button.



Group	BoxID	Type	Size (MB)	Usage	Forwarding interval (seconds)	Watch time (minutes)	HALT wait timer (seconds)	REC Disk Buffer Total Capacity (MB)
<input checked="" type="radio"/> 0	00E8000B####E890S20A####P0000000001##	Open	256	Send	4	15	15	<a href="#">2240512</a>
<input type="radio"/> 1	00E8000B####E890S20A####P0000000001##	Open	256	Receive	2	10	10	-
<input type="radio"/> 2	00E8000B####E8B0S20A####J0000001001##	Open	256	Send	1	5	5	<a href="#">560128</a>
<input type="radio"/> 3	00E8000B####E8B0S20A####J0000001001##	Open	128	Receive	4	0	0	-
<input type="radio"/> 4	-	-	0	Not used	-	-	-	-
<input type="radio"/> 5	-	-	0	Not used	-	-	-	-
<input type="radio"/> 6	-	-	0	Not used	-	-	-	-
<input type="radio"/> 7	-	-	0	Not used	-	-	-	-

→ The [Set REC Buffer (Set)] screen appears.

Refer to ["A.27.1 Set REC Buffer \(Set\) Screen" \(page 778\)](#) for screen details.

#### Note

Clicking the [REC Disk Buffer Total Capacity] link displays a list of REC Disk Buffers assigned to the relevant REC Buffer.



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File Edit View Favorites Tools Help

REC Buffer Group 0

**Assigned REC Disk Buffer**

RAID Group	Name	Status	Capacity (MB)	Disk Kind	Count	Encryption	Controlling CM
0x001 raid_001	Available	1120256	FC	8	-	CM01-CPU#0	
0x002 raid_002	Available	1120256	FC	8	-	CM00-CPU#1	

Close

### 3 Select the setting item for the remote device.

■ When selecting "Receive" for usage;

Click the [Execute] button.

■ When selecting "Send" for usage;

- When adding REC Disk Buffers, click the [Add] button.
- When deleting REC Disk Buffers, select REC Disk Buffers to be deleted (multiple selections can be made), and click the [Delete] button.
- When REC Disk Buffers are not added or deleted, click the [Execute] button.

Select the following items:

- Box ID (can be selected only when creating a new REC Buffer)  
Selects the Remote Box ID which is remotely connected with the local device.  
When creating a REC Buffer, [-] cannot be selected because [-] is used for initial display.

**Caution** 

List box is displayed only when an unused management group is selected on the [Set REC Buffer (Initial)] screen.

- Size  
Set the REC Buffer size to [128], [256], [512], [1024] or [2048] MB (unusable values are not available for selection).  
[-] is for initial display only and cannot be selected. When changing REC Buffer, the set REC Buffer size is displayed as initial display.
- Usage  
Select the purpose to use REC Buffer from [Send], [Receive].  
[Unused] is for initial display only and cannot be selected. When changing REC Buffer, the set usage is displayed as initial display.

**Caution** 

To set REC Buffer unused, delete the REC Buffer.

- Forwarding interval (seconds)  
Set the data forwarding interval to [1], [2], [4], [8], [15], [30], [45], [60], [75], [90], [105] or [120] seconds (unusable values are not available for selection).  
[-] is for initial display only and cannot be selected. When changing the REC Buffer, the set forwarding interval is displayed as the initial display.
- Watch time (minutes)  
Set the watch time from [0], [1], ..., [14], [15] (minutes). If the REC Buffer remains overload for the specified time, the status of REC session will be automatically changed to "HALT". When the "Watch time" is set to "0", the REC Buffer is not monitored.  
[-] is for initial display only and cannot be selected. When changing the REC Buffer, the set watch time is displayed as the initial display.

- **HALT wait timer (seconds)**  
Set the HALT wait timer from [0], [5], [10], [15] (seconds). The device monitors the host I/O waiting time. If the waiting time exceeds the specified time, REC session status automatically changes to "HALT" status.  
[-] is for initial display only and cannot be selected. When changing the REC Buffer, the set HALT wait timer is displayed as the initial display.
- **REC Disk Buffer Total Capacity (MB)**  
When the Usage is "Send", and the REC Disk Buffers are assigned to the relevant REC Buffer, the total capacity of the REC Disk Buffers is displayed.  
When the Usage is "Send" and the REC Disk Buffers are not assigned to the relevant REC Buffer, or when the Usage is "Receive", [-] (hyphen) is displayed.

REC Buffer settings

BoxID: [-]  
Type: Open  
Size(MB): [-]  
Usage: Not used  
Forwarding interval (seconds): [-]  
Watch time (minutes): [-]  
HALT wait timer (seconds): [-]

Assigned REC Disk Buffer

RAID Group No.	Group Name	Status	Capacity (MB)	Disk Kind	Disk Count	Encryption	Controlling CM
----------------	------------	--------	---------------	-----------	------------	------------	----------------

Add  
Execute Return

- The next screen changes according to the selected operation.
- When selecting "Receive" for usage;  
→ The [Set REC Buffer (Check Setting)] screen appears. Move on to [Step 6](#).
  - When selecting "Send" for usage and adding REC Disk Buffers;  
→ The [Set REC Buffer (Add REC Disk Buffer)] screen appears. Move on to [Step 4](#).  
Refer to ["A.27.2 Set REC Buffer \(Add REC Disk Buffer\) Screen" \(page 781\)](#) for screen details.
  - When selecting "Send" for usage and deleting REC Disk Buffers;  
→ The [Set REC Buffer (Set)] screen appears without the selected REC Disk Buffers (not deleted in the ETERNUS DX400/DX8000 series yet). Move on to [Step 5](#).
  - When selecting "Send" for usage and REC Disk Buffers are not added or deleted;  
→ The [Set REC Buffer (Check Setting)] screen appears. Move on to [Step 6](#).

**Caution**

- When adding four (two for ETERNUS DX410) REC Disk Buffers to the REC Buffer, the [Add] button is not displayed.
- When no REC Disk Buffers are assigned to the REC Buffer, the [Delete] button is not displayed.
- If the [Execute] button is clicked in the following conditions, an error screen appears.
  - When no setting items are changed
  - When the option for initial display ([ ] or [Not used]) for each setting item is selected
  - When more than one set of send / receive are set for the same Box ID
  - When selecting "Receive" for REC Buffer usage where the REC Disk Buffer has been assigned
- When the [Add] button is clicked after selecting "Receive" for usage, an error screen appears.
- If clicking the [Delete] button without selecting the target REC Disk Buffer, an error screen appears.



**Note**

Set the same REC Buffer information (Size, Forwarding interval, Watch time and HALT wait timer) for sending device and receiving device.

When using the REC Disk Buffer, only assign to the REC Buffer (Send). The REC Disk Buffer cannot be assigned to the REC Buffer (Receive).

- 4** Select the REC Disk Buffers (multiple selections can be made) to be added, and click the [Set] button.

Select REC Disk Buffer assigned to the REC Buffer group.

Assigned REC Disk Buffer							
RAID Group No.	Name	Status	Capacity (MB)	Disk Kind	Disk Count	Encryption	Controlling CM
0x080	raid_080	Available	1120256	FC	8	-	CM#0-CPU#0
0x081	raid_081	Available	1120256	FC	8	-	CM#1-CPU#0
0x082	raid_082	Available	1120256	FC	8	-	CM#0-CPU#1
0x083	raid_083	Available	1120256	FC	8	-	CM#1-CPU#1
0x084	raid_084	Available	1120256	FC	8	-	CM#0-CPU#0
0x085	raid_085	Available	1120256	FC	8	-	CM#1-CPU#0
0x086	raid_086	Available	751104	SSD	4	-	CM#0-CPU#1
0x087	raid_087	Available	751104	SSD	4	-	CM#1-CPU#1
0x088	raid_088	Available	751104	SSD	4	-	CM#0-CPU#0
0x089	raid_089	Available	1406519	FC	4	-	CM#1-CPU#0

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 Jump to Page Next

Set Return

→ Returns to the [Set REC Buffer (Set)] screen.

**Caution**

When the [Set] button is clicked in the following conditions, an error screen appears.

- When REC Disk Buffers other than one, two, or four (one or two for ETERNUS DX410) are assigned (including already assigned REC Disk Buffers)
- When the number of disks (4 or 8), disk type (FC or SSD), or encryption status (Yes or -) for REC Disk Buffers (including already assigned disks) do not match
- When no REC Disk Buffers to be assigned are selected

**Note**

When assigning multiple REC Disk Buffers to a single REC Buffer, the REC Disk Buffer capacity must be the same. If REC Disk Buffers of different capacities are assigned to a single REC Buffer, the smallest becomes the standard, and all other REC Disk Buffers are regarded as the same capacity as the smallest REC Disk Buffer. In this case, the remaining REC Disk Buffer space will not be used.

**5** Click the [Execute] button.

RAID Group No.	Name	Status	Capacity (MB)	Disk Kind	Count	Encryption	Controlling CM
0x083	raid_083	Available	1120256	FC	8	-	CM#1-CPU#1
0x084	raid_084	Available	1120256	FC	8	-	CM#0-CPU#0

→ The [Set REC Buffer (Check Setting)] screen appears.

**Caution**

When the [Execute] button is clicked in the following conditions, an error screen appears.

- When REC Disk Buffers other than one, two, or four (one or two for ETERNUS DX410) are assigned (including already assigned REC Disk Buffers)
- When the option for initial display ([ - ] or [Not used]) for each setting item is selected
- When more than one set of send / receive are set for the same Box ID
- When selecting "Receive" for REC Buffer usage where the REC Disk Buffer has been assigned

**6** Click the [OK] button.

Please confirm that you wish to perform this operation.

---

**REC Buffer setting situation**

BoxID	00E8000B#####E8MDS20A####KF0001001001##
Type	Open
Size(MB)	128
Usage	Send
Forwarding interval (seconds)	2
Watch time (minutes)	5
HALT wait timer (seconds)	15

---

**Assigned REC Disk Buffer**

RAID Group	Status	Capacity	Disk	Disk	Encryption	Controlling	CM
No.	Name	(MB)	Kind	Count			
0x083	raid_083	Available	1120256	FC	8	-	CM#1-CPU#1
0x084	raid_084	Available	1120256	FC	8	-	CM#0-CPU#0

→ The [Set REC Buffer (Updating Configuration Information)] screen appears.  
 When the processing completes, the [Set REC Buffer (Setting Result)] screen appears.

**Caution**



When a session is in progress, a message to that effect appears.  
 Click the [OK] button to return to the [Menu] screen, and try performing the setting again after the session has been suspended.

**7** Click the [OK] button.

Operation completed successfully.

---

**REC Buffer setting situation**

BoxID	00E8000B#####E8MDS20A####KF0001001001##
Type	Open
Size(MB)	128
Usage	Send
Forwarding interval (seconds)	2
Watch time (minutes)	5
HALT wait timer (seconds)	15

---

**Assigned REC Disk Buffer**

RAID Group	Status	Capacity	Disk	Disk	Encryption	Controlling	CM
No.	Name	(MB)	Kind	Count			
0x083	raid_083	Available	1120256	FC	8	-	CM#1-CPU#1
0x084	raid_084	Available	1120256	FC	8	-	CM#0-CPU#0

→ Returns to the [Menu] screen.

**End of procedure**

### 6.3.7.2 Delete REC Buffer

This section explains procedures to delete REC Buffer.

#### Procedure

- 1 Click [Set REC Buffer] under the Advanced Copy Settings in the [Settings] menu.  
 → The [Set REC Buffer (Initial)] screen appears.
- 2 Select the radio button of the remote device in which the REC Buffer is deleted, and click the [Set] button.

REC Buffer setting situation

Group	BoxID	Type	Size (MB)	Usage	Forwarding interval (seconds)	Watch time (minutes)	HALT wait timer (seconds)	REC Disk Buffer Total Capacity (MB)
0	00E8000MB####E8B0S20A####IP0000000001##	Open	256	Send	4	15	15	<a href="#">2240512</a>
1	00E8000MB####E8B0S20A####IP0000000001##	Open	256	Receive	2	10	10	-
2	00E8000MB####E8B0S20A####JJ0000001001##	Open	256	Send	1	5	5	<a href="#">560128</a>
3	00E8000MB####E8B0S20A####JJ0000001001##	Open	128	Receive	4	0	0	-
4	00E8000MB####E8B0S20A####KF0001001001##	Open	128	Send	2	5	15	<a href="#">2240512</a>
5	-	-	0	Not used	-	-	-	-
6	-	-	0	Not used	-	-	-	-
7	-	-	0	Not used	-	-	-	-

Set Delete Menu

→ The [Set REC Buffer (Delete Check)] screen appears.

#### Caution

When the [Delete] button is clicked after selecting a management group where no REC Buffer is set, the input error screen appears.

#### Note

Clicking the [REC Disk Buffer Total Capacity] link displays a list of the REC Disk Buffers assigned to the relevant REC Buffer.

- 3 Click the [OK] button.

The REC Buffer will be deleted. Are you sure?

OK Cancel

REC Buffer deleting situation

BoxID	00E8000MB####E8B0S20A####KF0001001001##
Type	Open
Size(MB)	128
Usage	Send
Forwarding interval (seconds)	2
Watch time (minutes)	5
HALT wait timer (seconds)	15

Assigned REC Disk Buffer

RAID Group No.	Name	Status	Capacity (MB)	Disk Kind	Disk Count	Encryption	Controlling CM
0x083	raid_083	Available	1120256	FC	8	-	CM#1-CPU#1
0x084	raid_084	Available	1120256	FC	8	-	CM#0-CPU#0

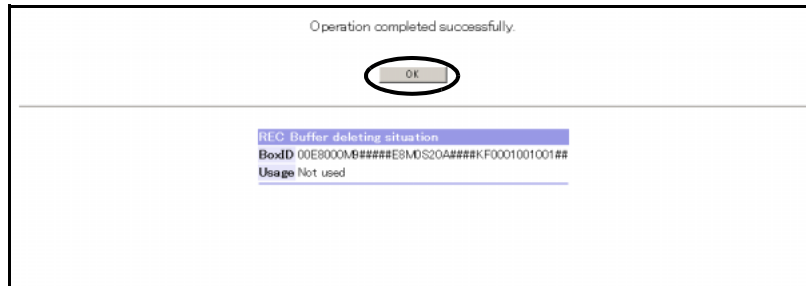
→ The [Set REC Buffer (Updating Configuration Information)] screen appears.  
When the processing completes, the [Set REC Buffer (Delete Result)] screen appears.

**Caution**



When a session is in progress, a message to that effect appears.  
Click the [OK] button to return to the [Menu] screen, and try performing the deletion again after the session has been suspended.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 6.3.8 Create REC Disk Buffer

This function creates REC Disk Buffers.

When using the REC Consistency mode, REC Buffer shortage may occur caused by errors (such as a bad line). Note that the copy session will also be HALTed if the REC Buffer shortage extends for a certain period of time. The REC Disk Buffer is used for temporarily saving copy data to avoid these situations.

■ Conditions for Creating REC Disk Buffers

- The Advanced Copy License must be registered
- The disk drives that configure the REC Disk Buffer must satisfy the following conditions:
  - Four or more Fibre Channel disk drives or four or more SSDs must be installed
  - The status must be [Present]
  - The target disk drive is not a system disk
  - The target disk drive is not a hot spare disk
  - Not registered in the existing RAID Group
- The maximum number of RAID Groups for each model has not already been created
- The maximum number of Logical Volumes for each model has not already been created

■ The maximum number of RAID Groups and Logical Volumes for each model

Model	The maximum number of RAID Groups (*1)	The maximum number of Logical Volumes
ETERNUS DX410	105	2048
ETERNUS DX440	210	4096
ETERNUS DX8100	29	3712 (4096) (*2)
ETERNUS DX8400	502	16384
ETERNUS DX8700	1364	16384

\*1: This indicates the number of RAID Groups when all of the RAID levels are defined as "RAID1".

\*2: The maximum number of volumes when creating Thin Provisioning Volumes. Note the actual number of volumes that can be created is less than the maximum value due to the Thin Provisioning specifications.

**Caution** 

- All disk drives selected for creating a REC Disk Buffer must have the same capacity. If disk drives of different capacities exist in a REC Disk Buffer, the smallest becomes the standard, and all other disks are regarded as having the same capacity as the smallest disk drive. In this case, the remaining disk space will not be used.
- Nearline SATA disk drives are not available for creating a REC Disk Buffer.
- Fibre Channel disk drives and SSDs cannot be combined in a single REC Disk Buffer.
- When logged on using a Resource Domain Administrator account, the [Create REC Disk Buffer] menu is not displayed.

 Note

- A single REC Disk Buffer is configured with a single RAID Group. When the REC Disk Buffer creation process is complete, the REC Disk Buffer will be formatted automatically. Refer to the [RAID Group List] function for format progress.
- A REC Disk Buffer can be created regardless of the existing REC Buffers.
- A REC Disk Buffer is only used as a backup destination of a REC Buffer (Send). Note that it is not used for a REC Buffer (Receive).
- A REC Disk Buffer is assigned to the REC Buffer using the [Set REC Buffer] function. Note the following conditions when assigning REC Disk Buffers:
  - A single REC Disk Buffer cannot be assigned to multiple REC Buffers.
  - One, two, or four (one or two for ETERNUS DX410) REC Disk Buffers can be assigned to a single REC Buffer. When assigning multiple REC Disk Buffers to a REC Buffer, RAID levels (RAID1+0(2+2) or RAID1+0(4+4)), disk type (Fibre Channel disk drive or SSD), encryption status (ON or OFF), and capacity must be matched in a REC Buffer. If REC Disk Buffers of different capacities exist in a single REC Buffer, all REC Disk Buffers that are registered in that REC Buffer have the same capacity as the smallest REC Disk Buffer.

This section explains how to create a REC Disk Buffer.

**Procedure**

- 1 Click [Create REC Disk Buffer] under the Advanced Copy Settings in the [Settings] menu.  
→ The [Create REC Disk Buffer (Set Creating Information)] screen appears.

**Caution**



If the ETERNUS DX400/DX8000 series does not satisfy the conditions for creating REC Disk Buffers, the [Suppress Function] screen appears. Click the [OK] button to return to the [Menu] screen. For more details on the required conditions, refer to ["Conditions for Creating REC Disk Buffers" \(page 483\)](#).

## 2 Specify the REC Disk Buffer information, and click the [Set] button.

Set the following to create REC Disk Buffers.

- **RAID Group Name**  
Input the name of the REC Disk Buffer to be created.
- **Controlling CM**  
Select the Controlling CM-CPU for the REC Disk Buffer to be created.
- **Encryption**  
Select encrypt (ON) or not encrypt (OFF) for the REC Disk Buffer to be created.  
The "Encryption" is displayed only when the encryption function and the encryption mode have been enabled.

→ The [Create REC Disk Buffer (Select Disk Drive)] screen appears.

### ■ REC Disk Buffer Specifications

The specifications for REC Disk Buffers are listed below.

RAID level	Number of disk drives	Disk drive type
RAID1+0(2+2) or RAID1+0(4+4)	4 or 8	Fibre Channel disk drive or SSD

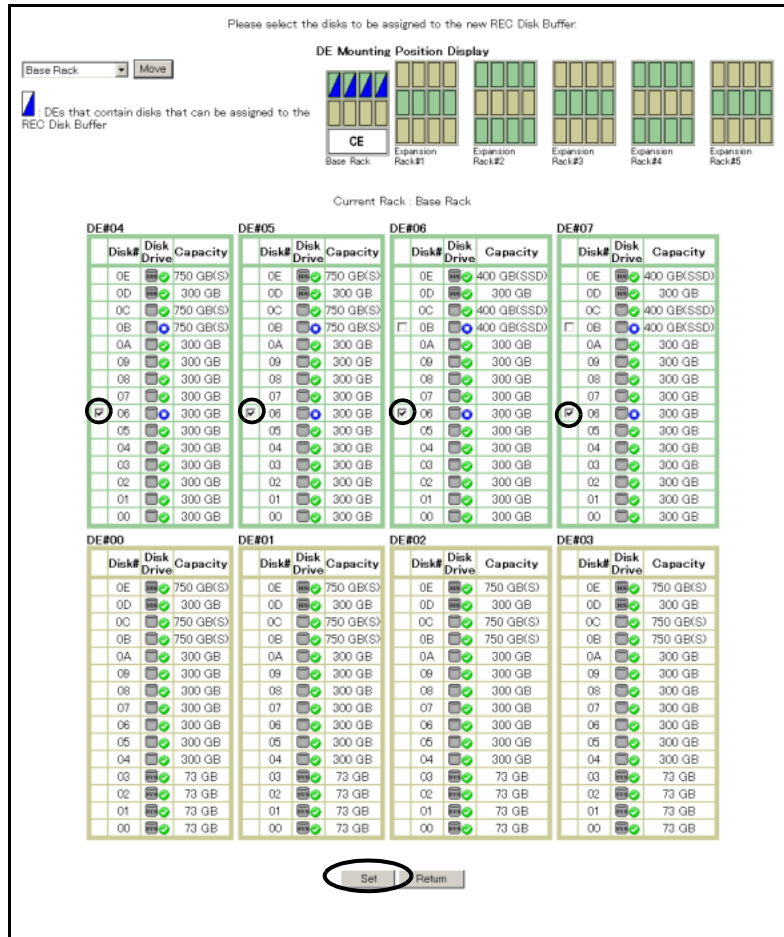
#### Caution



An error screen appears when clicking the [Set] button in the following conditions:

- When inputting characters other than the ASCII code (0x20 – 0x7E) as the RAID Group Name
- When inputting the existing RAID Group Name

- 3 Select all the disks to be registered in the REC Disk Buffer, and click the [Set] button.  
 Click the [Move] button to display the Expansion Rack screen. Select the Expansion Rack disks using the same procedure as the Base Rack.



→ The [Create REC Disk Buffer (Check Creation)] screen appears.  
 Check the following restrictions to select the disks.

#### ■ Restrictions for Disk Layout

RAID level		Number of disk drives	Selection conditions
RAID1+0	RAID1+0(2+2), RAID1+0(4+4)	4 or 8	Mirroring should NOT be by disk drives in the same FC-Loop (*1).

\*1: The FC-Loop number is represented as the lower 5 bits of the DE-ID (DE#xx). Disk drives in the same FC-Loop mean the disk drives installed in the DEs whose FC-Loop numbers are the same.

The same FC-Loop:

DE#0x, DE#2x, DE#4x, DE#6x  
 DE#1x, DE#3x, DE#5x, DE#7x

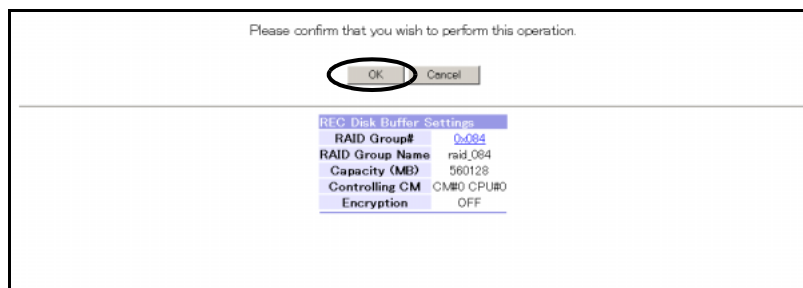
(Example) DE#00, DE#20, DE#40, and DE#60 are DEs in the same FC-Loop.

(Example) DE#11, DE#31, DE#51, and DE#71 are DEs in the same FC-Loop.

**Caution** 

- All disk drives selected for creating a REC Disk Buffer must have the same capacity. If disk drives of different capacities exist in a REC Disk Buffer, the smallest becomes the standard, and all other disks are regarded as having the same capacity as the smallest disk drive. In this case, the remaining disk space will not be used.
- An error screen appears when clicking the [Set] button in the following conditions:
  - No disk drives are selected
  - Disk drives other than four or eight are selected
  - The Fibre Channel disk drives and SSDs are both selected
  - Two disk drives configure a mirroring in the same FC-Loop

**4** Click the [OK] button.



→ The [Create REC Disk Buffer (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Create REC Disk Buffer (Creating Result)] screen appears.

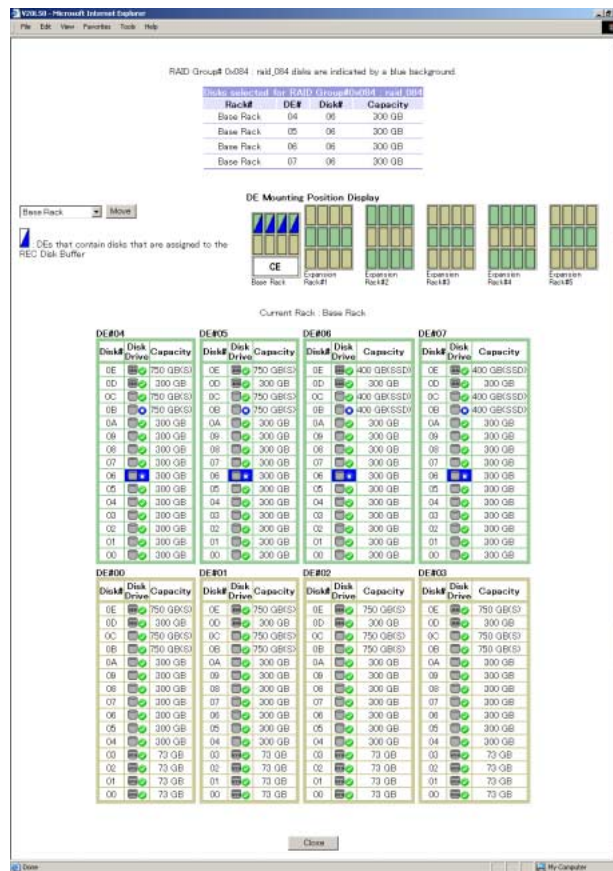
**Caution** 

RAID Group is registered as the REC Disk Buffer. A RAID Group obtains the Resource according to the volume number, and a single RAID Group is used as a single volume. After creating a REC Disk Buffer, the RAID Group that configures the REC Disk Buffer is formatted. When exceeding the maximum capacity of volumes that can be formatted at the same time, a message to that effect appears. Wait until the current format process is complete, and then format the unformatted REC Disk Buffer using the [Format REC Disk Buffer] function. For REC Disk Buffers that cannot be formatted, "Readying" is displayed in the Status field of the REC Disk Buffer List.



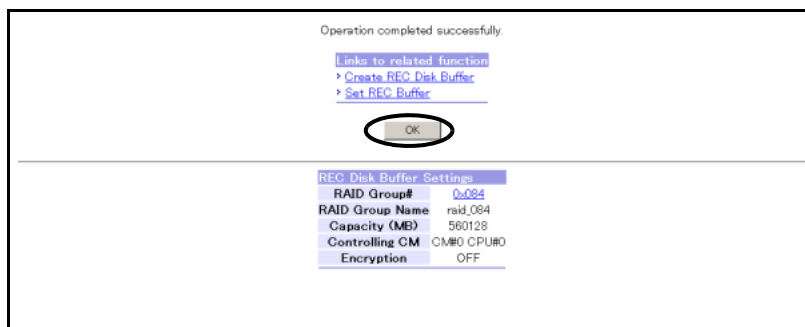
Note

- To confirm the DEs and disk drives for configuring the REC Disk Buffer, click the [RAID Group#] link.



- When the REC Disk Buffer name is specified, the [Create REC Disk Buffer (Setting RAID Group Name)] screen appears after the [Create REC Disk Buffer (Updating Configuration Information)] screen.

## 5 Click the [OK] button.



→ Returns to the [Menu] screen.



### Note

- Click the [Create REC Disk Buffer] link to continue REC Disk Buffer creation.
- When setting the REC Buffer or assigning the created REC Disk Buffer to the REC Buffer, click the [Set REC Buffer] link.

End of procedure

## 6.3.9 Format REC Disk Buffer

This function formats REC Disk Buffers.

### Caution

- The [Format REC Disk Buffer] function formats existing REC Disk Buffers in the ETERNUS DX400/DX8000 series. If a REC Disk Buffer that is in use is formatted, the data stored in the REC Disk Buffer will be deleted.
- When logged on using a Resource Domain Administrator account, the [Format REC Disk Buffer] menu is not displayed.



### Note

- Refer to the [RAID Group List] function for the format progress of REC Disk Buffers.
- When creating a REC Disk Buffer using the [Create REC Disk Buffer] function, the new REC Disk Buffer will be formatted automatically. In this case, formatting a REC Disk Buffer using the [Format REC Disk Buffer] function is not required.

This section explains how to format the REC Disk Buffer.

## Procedure

- 1 Click [Format REC Disk Buffer] under the Advanced Copy Settings in the [Settings] menu.  
→ The [Format REC Disk Buffer (Select the Method to Choose REC Disk Buffer)] screen appears.

### ■ REC Disk Buffer Conditions for Formatting

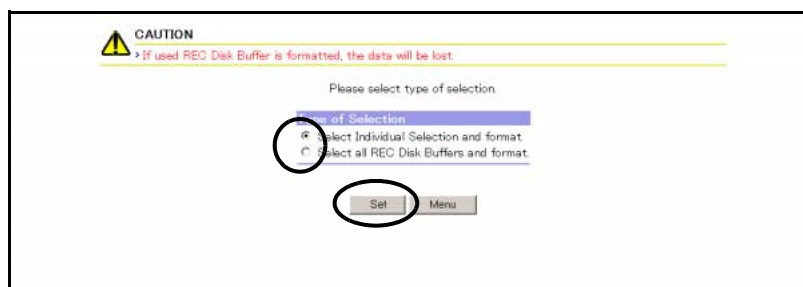
- The status of RAID Groups that configure the REC Disk Buffer is "Available" or "Readying"
- The RAID Group that configure the REC Disk Buffer is not blocked

### Caution



If there are no REC Disk Buffers that satisfy all the requirements described in "[REC Disk Buffer Conditions for Formatting](#)" (page 491), the [Suppress Function] screen appears. Click the [OK] button to return to the [Menu] screen.

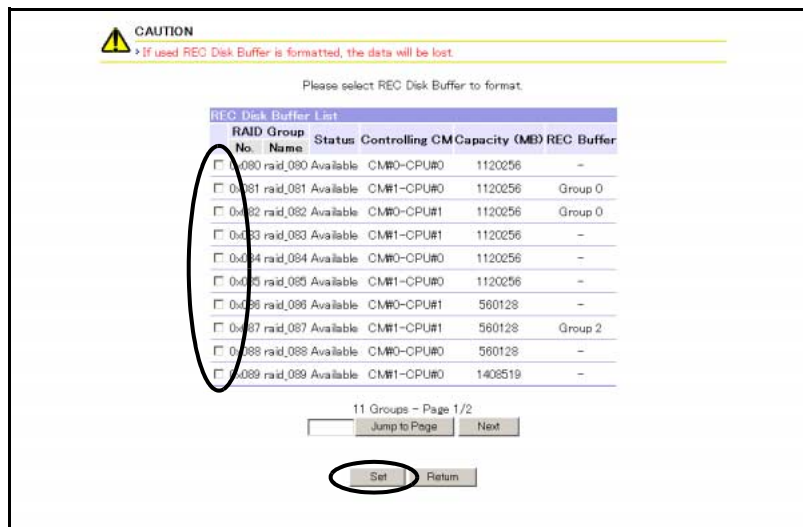
- 2 Specify the method to choose the REC Disk Buffer, and click the [Set] button.  
Select from the following:
  - Select Individual Selection and format.  
→ The [Format REC Disk Buffer (Select REC Disk Buffer)] screen appears. Move on to [Step 3](#).
  - Select all REC Disk Buffers and format.  
→ The [Format REC Disk Buffer (Check Formatting)] screen appears. Move on to [Step 4](#).



### Note

When selecting "Select all REC Disk Buffers and format.", REC Disk Buffers that satisfy all the requirements described in "REC Disk Buffer Conditions for Formatting" will be the formatting target.

- 3 Select the target REC Disk Buffers for formatting (multiple selections can be made), and click the [Set] button.



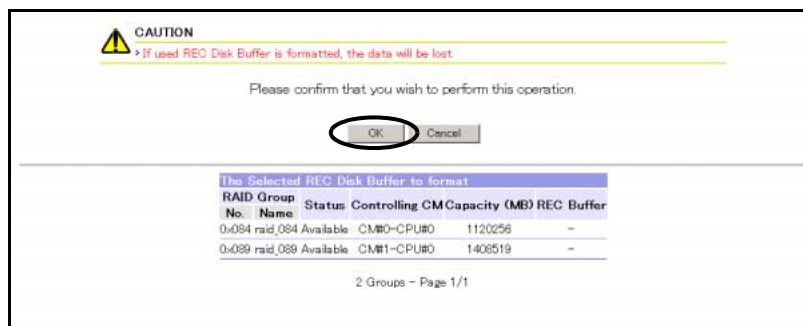
→ The [Format REC Disk Buffer (Check Formatting)] screen appears.

**Caution**



If the [Set] button is clicked without selecting the target REC Disk Buffer, an error screen appears.

- 4 Click the [OK] button.



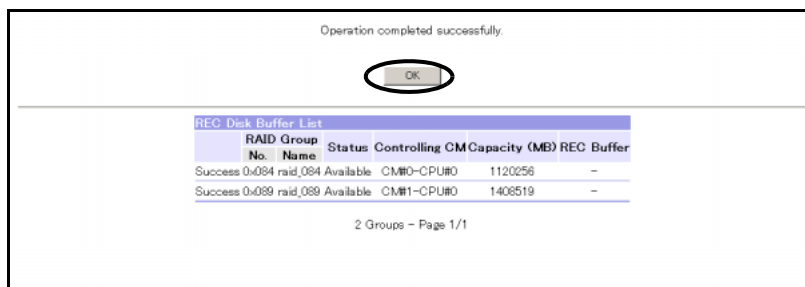
→ Formatting is started and the [Format REC Disk Buffer (Starting Formatting Process)] screen appears. When the format starting process is complete, the [Format REC Disk Buffer (Result of Starting Format)] screen appears.

**Caution**



All specified REC Disk Buffers are formatted by clicking the [OK] button. If formatting a REC Disk Buffer is in use, the data stored in the REC Disk Buffer will be deleted.

## 5 Click the [OK] button.



→ Returns to the [Menu] screen.

### Caution

- When formatting a REC Disk Buffer, the RAID Group that configures the REC Disk Buffer is also formatted.
- When exceeding the maximum capacity of volumes that can be formatted at the same time, a message to that effect appears. Wait until the current format process is complete, and then format the unformatted REC Disk Buffer. For REC Disk Buffers that cannot be formatted, "Error" or "Not formatted" is displayed as the result of starting formatting.

End of procedure

## 6.3.10 Delete REC Disk Buffer

This function deletes existing REC Disk Buffers in the ETERNUS DX400/DX8000 series.

### Caution

- REC Disk Buffers that have been assigned to the REC Buffer cannot be deleted.
- When logged on using a Resource Domain Administrator account, the [Delete REC Disk Buffer] menu is not displayed.

### Note

When the REC Disk Buffers are deleted, the RAID Groups created in the relevant REC Disk Buffer are also deleted.

This section explains how to delete the REC Disk Buffers.

### Procedure

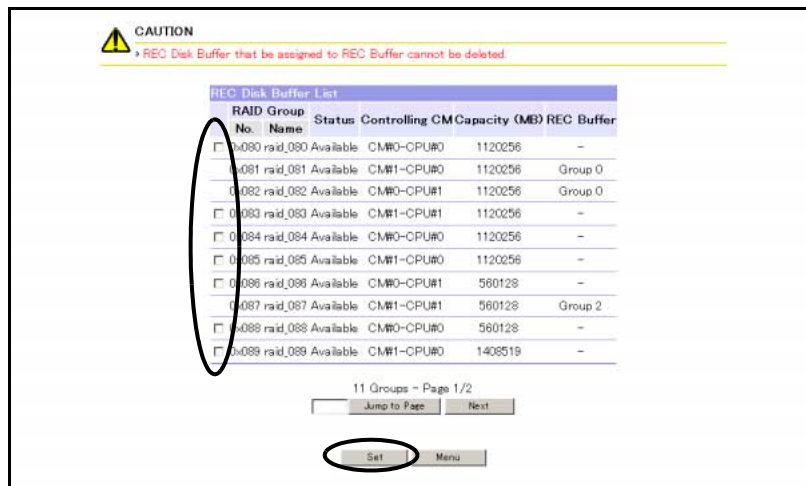
- 1 Click [Delete REC Disk Buffer] under the Advanced Copy Settings in the [Settings] menu.  
 → The [Delete REC Disk Buffer (Select REC Disk Buffer)] screen appears.

**Caution**

If there are no REC Disk Buffers to be deleted in the ETERNUS DX400/DX8000 series, the [Suppress Function] screen appears. Click the [OK] button to return to the [Menu] screen.

- 2 Select the REC Disk Buffers to be deleted (multiple selections can be made), and click the [Set] button.

Up to 128 REC Disk Buffers can be deleted at the same time. When deleting 129 or more REC Disk Buffers, complete the first REC Disk Buffer deletion operation, and perform the [Delete REC Disk Buffer] function again.

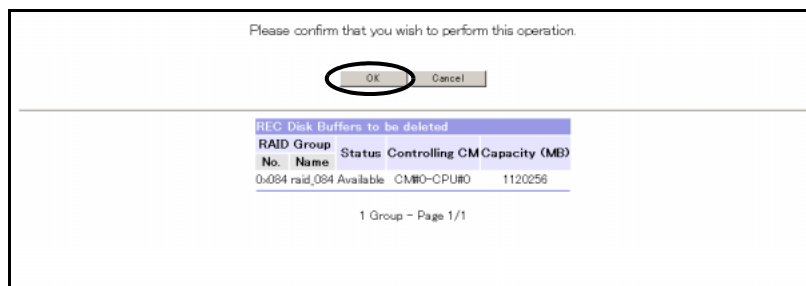


→ The [Delete REC Disk Buffer (Check Deletion)] screen appears.

**Caution**

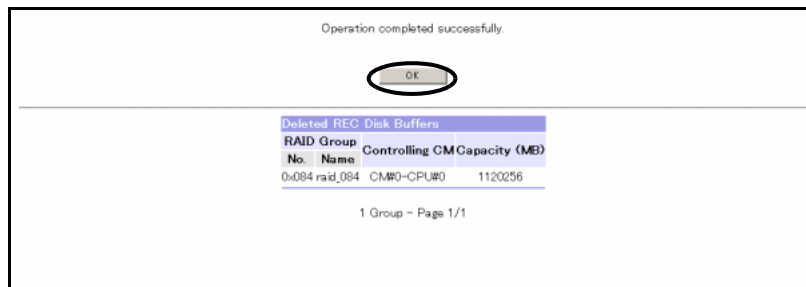
- REC Disk Buffers that have been assigned to the REC Buffer cannot be deleted.
- An error screen appears when clicking the [Set] button in the following conditions:
  - When no REC Disk Buffers are selected to be deleted
  - When selecting 129 or more REC Disk Buffers

- 3 Click the [OK] button.



→ The [Delete REC Disk Buffer (Updating Configuration Information)] screen appears. After the process has successfully been completed, the [Delete REC Disk Buffer (Deletion Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 6.3.11 Set Advanced Copy Event Notification

This function determines whether Advanced Copy Events are reported or not.

The notifications covered by this function are shown below.

- Remote Path Error  
Reports that a path error has been detected in the REC.
- REC Buffer Halt  
Reports when REC Buffer Halt status is detected during REC Consistency Mode.  
Select which of the error causes are notifiable.
  - REC Buffer Halt (Remote Path Error)  
Reports the REC Buffer Halt status caused by the REC path error.
  - REC Buffer Halt (Overload)  
Reports the REC Buffer Halt status caused by the overload.
  - REC Buffer Halt (Error)  
Reports the REC Buffer Halt status caused by an error.

The following are the event notification methods.

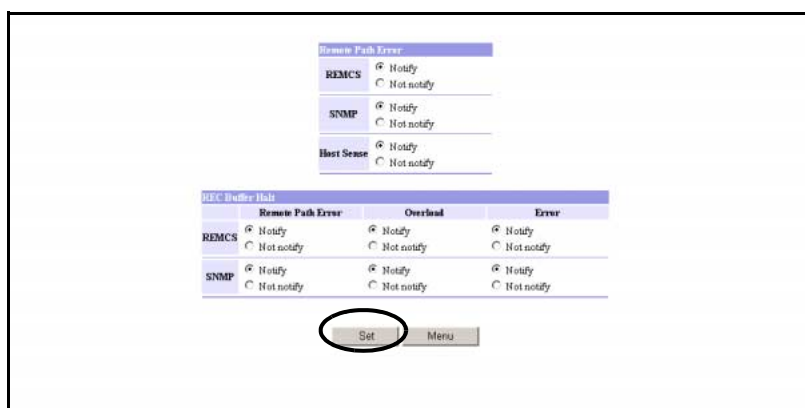
- REMCS  
The notice is sent from the ETERNUS DX400/DX8000 series to REMCS center as a Remote Support message. The "Remote Path Error" and "REC Buffer Halt" can be reported.
- SNMP  
The notice is sent from the ETERNUS DX400/DX8000 series to SNMP Manager as Trap information. The "Remote Path Error" and "REC Buffer Halt" can be reported.
- Host Sense  
The notice is sent from the ETERNUS DX400/DX8000 series to the host as host sense information. The "Remote Path Error" can be reported.

**Caution** 

- Copy related menus other than [Register Advanced Copy License] is not available until the license has been registered.
- This setting is applied over the whole device (ETERNUS DX400/DX8000 series). Reporting of events for specific paths only is not possible.
- When setting REC Advanced Copy Event notification, the copy source and copy destination devices must both be set to either "Notify" or "Not notify".
- When logged on using a Resource Domain Administrator account, the [Set Advanced Copy Event Notification] menu is not displayed.

**Procedure**

- 1 Click [Set Advanced Copy Event Notification] under the Advanced Copy Settings in the [Settings] menu.  
 → The [Set Advanced Copy Event Notification (Initial)] screen appears.
- 2 Select "Notify" or "Not notify" for each item, and click the [Set] button.



→ The [Set Advanced Copy Event Notification (Check Setting)] screen appears.

■ Default Advanced Copy Event notification values

	Remote Path Error
REMCS	Notify
SNMP	Notify
Host Sense	Notify

	REC Buffer Halt		
	Remote Path Error	Overload	Error
REMCS	Notify	Notify	Notify
SNMP	Notify	Notify	Notify

**3** Click the [OK] button.

A changed notification mode in the ETERNUS DX400/DX8000 series is displayed with a yellow background.

Please confirm that you wish to perform this operation.

OK Cancel

---

**Remote Path Error**

REMCS ☒ Notify ☐ Not notify

SNMP ☒ Notify ☐ Not notify

Host Sense ☒ Notify ☐ Not notify

**REC Buffer Full**

	Remote Path Error	Overload	Error
REMCS	<input checked="" type="radio"/> Notify <input type="radio"/> Not notify	<input checked="" type="radio"/> Notify <input type="radio"/> Not notify	<input checked="" type="radio"/> Notify <input type="radio"/> Not notify
SNMP	<input checked="" type="radio"/> Notify <input type="radio"/> Not notify	<input checked="" type="radio"/> Notify <input type="radio"/> Not notify	<input checked="" type="radio"/> Notify <input type="radio"/> Not notify

→ The [Set Advanced Copy Event Notification (Setting Result)] screen appears.

**4** Click the [OK] button.

A changed notification mode that has been set in the ETERNUS DX400/DX8000 series is displayed with a yellow background.

Operation completed successfully.

OK

---

**Remote Path Error**

REMCS ☒ Notify ☐ Not notify

SNMP ☒ Notify ☐ Not notify

Host Sense ☒ Notify ☐ Not notify

**REC Buffer Full**

	Remote Path Error	Overload	Error
REMCS	<input checked="" type="radio"/> Notify <input type="radio"/> Not notify	<input checked="" type="radio"/> Notify <input type="radio"/> Not notify	<input checked="" type="radio"/> Notify <input type="radio"/> Not notify
SNMP	<input checked="" type="radio"/> Notify <input type="radio"/> Not notify	<input checked="" type="radio"/> Notify <input type="radio"/> Not notify	<input checked="" type="radio"/> Notify <input type="radio"/> Not notify

→ Returns to the [Menu] screen.

End of procedure

## 6.4 SNMP

The following settings can be performed from this menu.

- Set SNMP Agent Environment
- Download Extended MIB Definition File
- SNMP Trap Test

### 6.4.1 Set SNMP Agent Environment

SNMP Agent installed in the device is set up from this screen.

Simple Network Management Protocol (SNMP) is a standard protocol used by the network management of TCP/IP. This standard protocol is used to monitor the equipment connected with the network via the network.

SNMP is configured of monitoring part (SNMP Manager) and monitored part (SNMP Agent).

SNMP requests, responds and, submits the administrative information between Manager and Agent by using the following five commands.

(1) Get Request

(2) Get Next Request

(3) Get Response

(4) Set Request

(5) Trap

Of the five commands above, "(1) – (4)" are commands issued from the Manager and "(5)" is a command issued from the Agent.

#### Caution



When a device uses the SNMP Agent Environment, it is necessary to install software in the SNMP Manager.



#### Note

- The [SNMP Function] radio button indicates whether the SNMP setting is enabled or disabled.
- SNMP can be disabled using the [SNMP Function] radio button.

The following explains the setting procedures of the SNMP Agent Environment.

The following settings are available.

- [Enable SNMP Agent Environment](#)
- [Disable SNMP Agent Environment](#)

The procedures are explained in the following sections.

### 6.4.1.1 Enable SNMP Agent Environment

This section explains how to enable the SNMP Agent environment.

#### Procedure

- 1** Click [Set SNMP Agent Environment] under the SNMP in the [Settings] menu.  
→ The [Set SNMP Agent Environment (Initial)] screen appears.  
Refer to ["A.28.1 Set SNMP Agent Environment \(Initial\) Screen" \(page 782\)](#) for screen details.
- 2** Sets the following items and click the [Set] button.
  - SNMP Function Setting  
Enables the SNMP Function.
  - SNMP Agent Configuration Setting  
Set items related to SNMP Agent operations.
  - Device Unique Information  
The information unique to the device such as [Explanation], [Administrator], [Name], and [Installation Site] can be set. This information is added to the response of SNMP from Agent to Manager, and used by the SNMP Manager.
  - Transfer Authentication Error  
Specify by radio button whether or not to transfer the Trap message when an error is detected in authentication check for the request received by SNMP Agent.
  - Report abnormal status of parts while maintenance work (MIB)  
Specify by radio button whether or not to report the error status of components under maintenance to MIB.

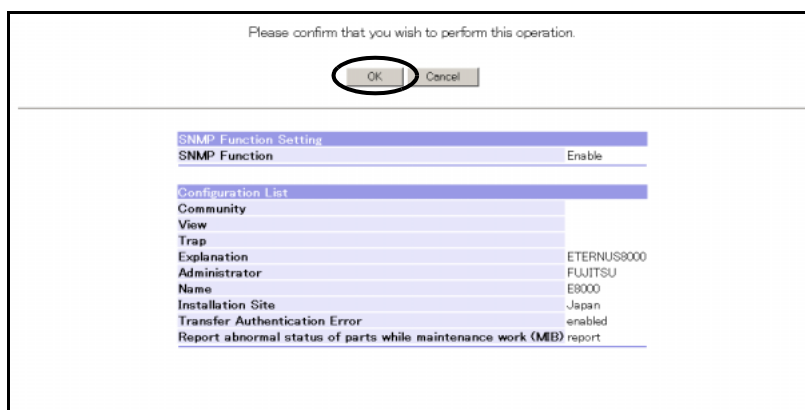
The screenshot shows the 'Set SNMP Agent Environment (Initial)' screen. It contains several sections: 'SNMP Function Setting' with a radio button for 'Enable' (selected) and 'Disable'; 'SNMP Agent Configuration Setting' with fields for 'Community', 'View', and 'Trap'; 'Device Unique Information' with fields for 'Explanation' (ETERNUS0000), 'Administrator' (FUJITSU), 'Name' (E0000), and 'Installation Site' (Japan); 'Transfer Authentication Error' with radio buttons for 'transfer' (selected) and 'not transfer'; and 'Report abnormal status of parts while maintenance work (MIB)' with radio buttons for 'report' (selected) and 'not report'. At the bottom, there are 'Set' and 'Menu' buttons. A large circle is drawn around the main configuration area, and a smaller circle highlights the 'Set' button.

→ The [Set SNMP Agent Environment (Setting Check)] screen appears.

**Caution** 

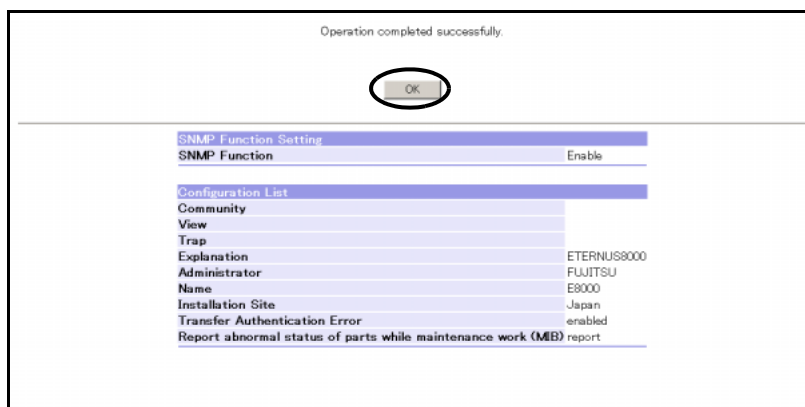
- When the SNMP Function is [Enabled], the input [SNMP Agent Configuration Setting], [Device Unique Information], [Transfer Authentication Error], and [Report abnormal status of parts while maintenance work (MIB)] values will be set in the ETERNUS DX400/DX8000 series.
- When the entry, numbers, or characters of setting items are wrong, an error screen appears.

**3** Click the [OK] button.



→ The [Set SNMP Agent Environment (Setting Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

**End of procedure**

### 6.4.1.2 Disable SNMP Agent Environment

This section explains how to disable the SNMP Agent environment.

#### Procedure

- 1 Click [Set SNMP Agent Environment] under SNMP in the [Settings] menu.  
→ The [Set SNMP Agent Environment (Initial)] screen appears.  
Refer to ["A.28.1 Set SNMP Agent Environment \(Initial\) Screen" \(page 782\)](#) for screen details.
- 2 Set the following item and click the [Set] button.
  - SNMP Function Setting  
Disables the SNMP Function.

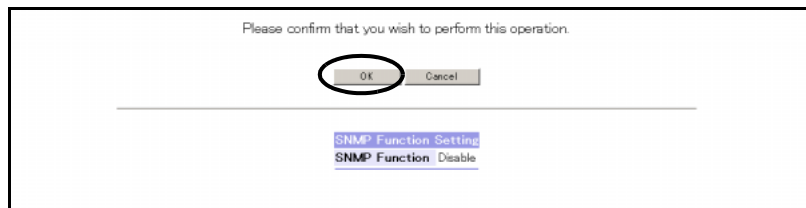
The screenshot shows the 'Set SNMP Agent Environment (Initial)' screen. At the top, 'SNMP Function' is set to 'Disable' (radio button selected). Below this is the 'SNMP Agent Configuration Setting' section with 'Community', 'View', and 'Trap' fields. The 'Device Unique Information' section includes 'Explanation' (ETERNUS8000), 'Administrator' (FUJITSU), 'Name' (E8000), and 'Installation Site' (Japan). The 'Transfer Authentication Error' section has a radio button for 'transfer' selected. The 'Report abnormal status of parts while maintenance work (MIB)' section has a radio button for 'report' selected. At the bottom, the 'Set' button is circled.

→ The [Set SNMP Agent Environment (Setting Check)] screen appears.

#### Caution

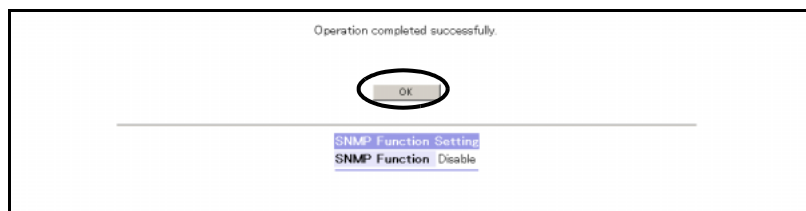
When the SNMP Function is [Disabled], all SNMP Agent Environment settings in the ETERNUS DX400/DX8000 series will be deleted. Even if [SNMP Agent Configuration Setting], [Device Unique Information], [Transfer Authentication Error] and/or [Report abnormal status of parts while maintenance work (MIB)] values are entered via ETERNUSmgr, they will not be set in the ETERNUS DX400/DX8000 series.

**3** Click the [OK] button.



→ The [Set SNMP Agent Environment (Setting Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 6.4.2 Download Extended MIB Definition File

This is a function to download the Extended MIB definition file registered in the device.

Management Information Base (MIB) is the information for Manager to manage Agent on Simple Network Management Protocol (SNMP). This information is a database with structure of tree type. Extended MIB definition file is used so that the application (SNMP Manager) that uses SNMP environment settings of the device and other SNMP can handle the device (SNMP Agent).

In addition to the extended MIB definition file, this function can also download SNMP Trap and ServerView Monitoring MIB files. The SNMP Trap file contains event information that will be sent to the SNMP manager from the device (SNMP Agent), which shows the device (SNMP Agent) status. The ServerView Monitoring MIB file is a MIB definition file that is used when ServerView monitors the device.

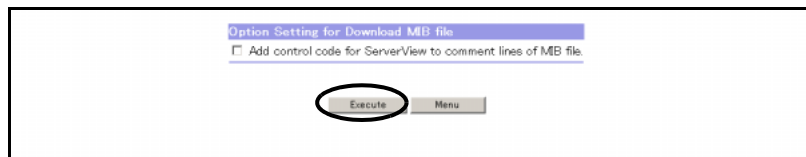
**Caution**

- When the device uses the SNMP Agent environment, this function is necessary.
- The SNMP Trap file is included in the Extended MIB Definition File. If the ServerView Monitoring MIB file is selected, this file is also included in the Extended MIB Definition File.
- The Extended MIB Definition File should be saved within one minute after clicking the [Downloaded files] link. If the download dialog box is left open for over a minute, the download operation may be terminated with an unsuccessfully downloaded file.  
If the downloaded file cannot be opened, the download has failed, try the download again.

The following explains the download procedures for the Extended MIB Definition File.

## Procedure

- 1 Click [Download Extended MIB Definition File] under the SNMP in the [Settings] menu.  
→ The [Download Extended MIB Definition File (Initial)] screen appears.
- 2 Click the [Execute] button to download the file.  
If the ServerView Monitoring MIB file is also to be downloaded, select the "Add control code for ServerView to comment lines of MIB file" checkbox.



→ The [Download Extended MIB Definition File (Download File)] screen appears.

- 3 Click the link of the downloaded file, and save the file.
  - When downloading the ServerView Monitoring MIB file:



- When the ServerView Monitoring MIB file is not downloaded:



- 4 After saving, click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

### 6.4.3 SNMP Trap Test

The trap is transmitted from the SNMP Agent to the SNMP Manager on this screen to test communication between the SNMP Agent installed in the device and the SNMP Manager. When device management is executed by using SNMP, after configuring SNMP Agent and SNMP Manager, it is necessary to confirm that the communication is possible. Therefore, transmit trap from the SNMP Agents to the SNMP Manager, and confirm communication on both sides of the SNMP Agent and SNMP Manager.

#### Caution

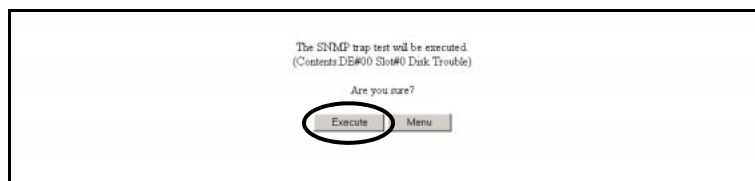


- [SNMP Trap Test] is a function that transmits traps from the SNMP Agent to the SNMP Manager. If the SNMP function is enabled, after transmitting a trap confirm that it was received on the SNMP Manager side.
- If a trap is transmitted, but the SNMP function is disabled, a message indicates that the function is not available.

The following explains the execution procedures for [SNMP Trap Test].

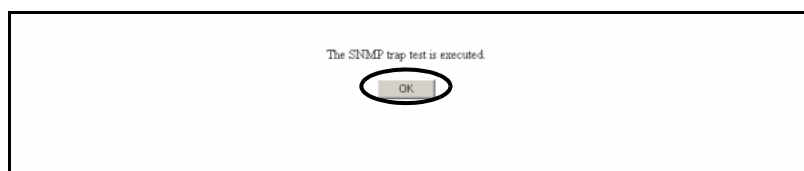
#### Procedure

- 1 Click [SNMP Trap Test] under the SNMP in the [Settings] menu.  
→ The [SNMP Trap Test (Initial)] screen appears.
- 2 Click the [Execute] button to execute SNMP Trap Test.



→ The [SNMP Trap Test (Result)] screen appears.

- 3 Click the [OK] button.
  - When the SNMP function is enabled:



→ Returns to the [Menu] screen.

- When the SNMP function is disabled:



→ Returns to the [Menu] screen.

---

**Caution**



When the SNMP function is enabled, confirm that the trap (Disk failure in DE#00 Slot#0) could be normally received in the SNMP Manager after the SNMP Trap Test.

---

**End of procedure**

---

## 6.5 Eco-mode

The following functions can be set using this menu.

- Set Common Eco-mode
- Set Eco-mode Schedule
- Set RAID Group-Eco-mode
- Set Thin Provisioning Pool-Eco-mode

### 6.5.1 Set Common Eco-mode

On this screen, the Eco-mode operation can be set for the whole device.

By setting the Eco-mode schedule in each RAID group or Thin Provisioning Pool, and activating Eco-mode for the whole device, disk motor can be disabled.

#### Caution

- The Eco-mode is not available for the following disks and RAID groups. In these conditions, the disk motor is enabled continuously.
  - System disk
  - Hot spare disk
  - A RAID group that is configured by the shared disks used as system disks.
  - A Thin Provisioning Pool including a RAID group that is configured by the shared disks used as system disks.
  - A RAID group with Mainframe Volume, MVV Volume, or MVV Concatenated Volume is registered.
  - A RAID group with no volume registered.
- The Eco-mode is not available for the SSD.
- For disk drives that are not assigned to a RAID group, the disk motor is disabled/enabled based on the [Common Eco-mode Settings] start/stop settings.
- If the device status is changed to one of the following while Eco-mode is enabled (and the disk is activated), all disks installed in the device will not deactivate the motor based on the Eco-mode settings. When the device status becomes ready, Eco-mode is enabled again.
  - When the device is in power supply cutting process or in boot process.
  - When the device is in power failure process.
  - When the device status is abnormal.
  - When the device status is "Subsystem Down".
  - When the device status is "Under Maintenance".
  - When there are failed components (CMs or modules that are related to the disk access path) in the device.
  - When the disk diagnosis is in progress.
  - When the RAID diagnosis is in progress.

- If one of the following operation occurs while Eco-mode is enabled (the disk is stopped), all the disk motors installed in the device will start. When the following operation is complete, Eco-mode is enabled again.
  - When turning on the device power supply.
  - During maintenance.
  - During disk diagnosis.
  - During RAID diagnosis.
  - When checking disk operations. (\*1)

\*1: To check the operation of disks whose motors are normally disabled, all such disks are briefly enabled at 00:00 every night. Eco-mode is re-enabled after correct disk operation has been confirmed.

#### Note

- When a RAID Group is not included in the Thin Provisioning Pool, Eco-mode operates for each RAID Group. When using Eco-mode, create an Eco-mode schedule in the [Set Eco-mode Schedule] menu and register the created schedule in the RAID Group by the [Set RAID Group-Eco-mode].
- When a RAID Group is included in the Thin Provisioning Pool (TPP), Eco-mode operates for each TPP. When using Eco-mode, create an Eco-mode schedule in the [Set Eco-mode Schedule] menu and register the created schedule in the Thin Provisioning Pool by the [Set Thin Provisioning Pool-Eco-mode].
- Eco-mode is available for Fibre Channel disk drives and Nearline SATA disk drives.
- Eco-mode is used to schedule the disk operation time. The disk motor is started 15 minutes before the specified operation time, and is stopped 15 minutes after the specified operation time.

The following Common Eco-mode Settings are available:

- [Eco-mode Start setting](#)
- [Eco-mode Stop setting](#)

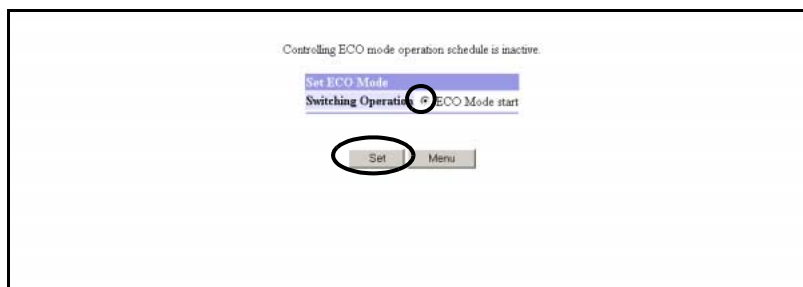
### 6.5.1.1 Eco-mode Start setting

The following explains the procedure to start the Eco-mode.

#### Procedure

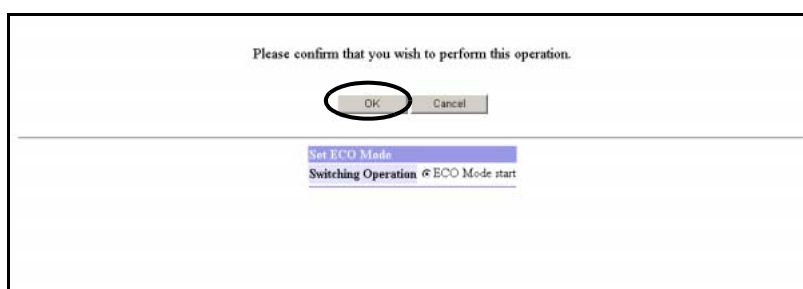
- 1 Click [Set Common Eco-mode] under the Eco-mode in the [Settings] menu.  
→ The [Set Common Eco-mode (Set)] screen appears.

- 2** Perform the common Eco-mode setting and click the [Set] button.



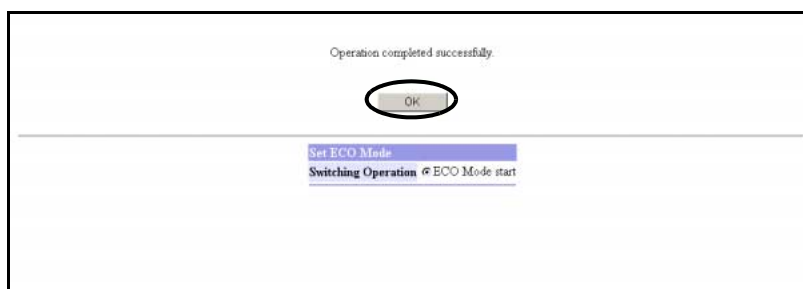
→ The [Set Common Eco-mode (Check)] screen appears.

- 3** Click the [OK] button to update the common Eco-mode setting.



→ The [Set Common Eco-mode (Updating Configuration Information)] screen appears.  
After the process has successfully completed, the [Set Common Eco-mode (Result)] screen appears.

- 4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 6.5.1.2 Eco-mode Stop setting

The following explains the procedure to stop the Eco-mode.

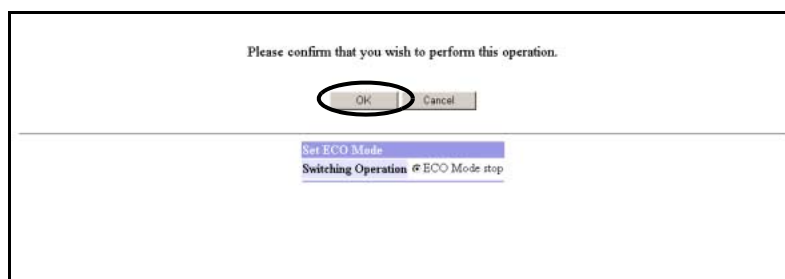
#### Procedure

- 1 Click [Set Common Eco-mode] under the Eco-mode in the [Settings] menu.  
→ The [Set Common Eco-mode (Set)] screen appears.
- 2 Perform the common Eco-mode setting and click the [Set] button.



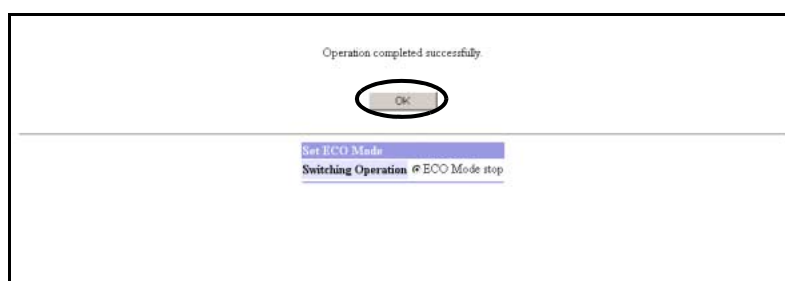
→ The [Set Common Eco-mode (Check)] screen appears.

- 3 Click the [OK] button to update the common Eco-mode setting.



→ The [Set Common Eco-mode (Updating Configuration Information)] screen appears.  
After the process has successfully completed, the [Set Common Eco-mode (Result)] screen appears.

- 4 Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 6.5.2 Set Eco-mode Schedule

On this screen, the schedule for Eco-mode operation can be set.

Assign the created schedule to the RAID Groups or Thin Provisioning Pools to enable the Eco-mode and activate the disk motor constantly during the specified term.

### Caution

- [Set Eco-mode Schedule] sets the schedule for the active disk term.
- [OPC/SnapOPC/SnapOPC+] When setting the Eco-mode for copy source/destination OPC, it is necessary to activate the disks while executing the OPC due to OPC features. Use the [Set Eco-mode Schedule] menu to ensure that the disk motors are active whenever an OPC is in progress. If it is difficult to schedule, do not set the Eco-mode to the OPC copy source and destination. If the disk is deactivated, the OPC cannot be executed.
- [QuickOPC] When setting the Eco-mode for copy source/destination OPC, it is necessary to activate the disks while executing the OPC due to OPC features. However, if the copy is in "Tracking" status (recording the update), and the relevant volume is not accessed for a certain period of time, the motor can be deactivated. Note that if the disk motor is deactivated, starting a new copy or differential copy cannot be executed.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Resource Domains to which the Eco-mode schedule can be assigned differ depending on the current user account.
  - When logged on using a Total Administrator account, Eco-mode schedules can be assigned to all the Resource Domains.
  - When logged on using a Resource Domain Administrator account, Eco-mode schedules can be assigned only to the relevant Resource Domain.

### Note

- When a RAID Group is not included in the Thin Provisioning Pool, assign the created Eco-mode schedule to the RAID Group with the [Set RAID Group-Eco-mode] menu.
- When a RAID Group is included in the Thin Provisioning Pool (TPP), assign the created Eco-mode schedule to the TPP with the [Set Thin Provisioning Pool-Eco-mode] menu.

The following explains the setting procedures for the Eco-mode schedule.  
The following functions can be set using this menu.

- [Add Eco-mode Schedule](#)
- [Delete Eco-mode Schedule](#)
- [Change Eco-mode Schedule](#)

Procedures for each operation are described below.

### 6.5.2.1 Add Eco-mode Schedule

This section describes procedure to add Eco-mode schedule.

#### Procedure

- 1** Click [Set Eco-mode Schedule] under the Eco-mode in the [Settings] menu.  
→ The [Set Eco-mode Schedule (List)] screen appears.
- 2** Set the following items and click the [Add] button.
  - Addition Schedule No.  
Specify the unused schedule number among 0x00 to 0x3F (2 digits of hexadecimal).
  - Addition Schedule Name  
Set the non-overlapped Schedule Name with up to 16 ASCII code characters (0x20 – 0x7E). Entering a name is not mandatory.
  - Assignable Resource Domain No.  
Select the Resource Domain to be assigned to the new Eco-mode schedule from the list box.  
The [Assignable Resource Domain No.] is only displayed when logged on the ETERNUS DX400/DX8000 series, in which the Resource Domains are registered, using a Total Administrator account.

ECO Mode Schedule List	
Schedule	
No.	Name
<input type="checkbox"/> 0x00	sche0000
<input type="checkbox"/> 0x01	sche0001
<input type="checkbox"/> 0x02	sche0002

Addition Schedule No. [0x03]

Addition Schedule Name [ ]

[Add] [Delete] [Set] [Menu]

→ The [Set Eco-mode Schedule (Set)] screen appears.  
Refer to ["A.29.1 Set Eco-mode Schedule \(Set\) Screen" \(page 786\)](#) for screen details.

#### Caution

- Up to 64 Eco-mode schedules can be created per device.
- When there are no free schedules, the [Add] button is not displayed.
- If an existing schedule name is specified and the [OK] button is clicked, an error screen appears.

### 3 Set the contents for Eco-mode schedule.

#### ■ When adding the Constantly Active Disk Term

Add the Constantly Active Disk Term for the target Eco-mode schedule.

(1) Select radio button for the template.

(2) Select the start time (day of the week, week, and month and day) and end time (day of the week and day) for the Constantly Active Disk Term from the drop-down list.

(3) Click the [Add] button and the information is displayed in the end of [Constantly Active Disk Term] on the screen.

#### ■ When deleting the Constantly Active Disk Term

Delete the Constantly Active Disk Term from the target Eco-mode schedule.

(1) Select the active disk term to be deleted with the radio buttons in [Constantly Active Disk Term].

(2) Click the [Delete] button and the information is deleted from the [Constantly Active Disk Term] on the screen.

#### ■ When copying the Constantly Active Disk Term

Copy the selected constantly active disk term to the template and use it.

(1) Select the active disk term to be copied from the radio buttons in [Constantly Active Disk Term].

(2) Click the [Copy] button to copy the selected information to the template.  
(Radio button for the copied template is displayed.)

(3) Select the start time (day of the week, week, and month and day) and end time (day of the week and day) for the Constantly Active Disk Term from the drop-down list.

(4) Click the [Change] button or [Add] button.  
When clicking the [Change] button, the active disk term selected in Step 1 is changed.  
When clicking the [Add] button, the new information is displayed in the end of [Constantly Active Disk Term] on the screen.

#### ■ When changing the Constantly Active Disk Term

Change the selected, constantly active disk term value to the specified information in the template.

(1) Select the active disk term to be changed from the radio buttons in [Constantly Active Disk Term].

(2) Select radio button for the template.

(3) Select the start time (day of the week, week, and month and day) and end time (day of the week and day) for the Constantly Active Disk Term from the drop-down list.

(4) Click the [Change] button and the information in the [Constantly Active Disk Term] is changed.

Schedule Name : sche0003

Schedule No.	Schedule Name	Term	Start Time	End Time
0003		Constantly Active Disk Term	Everyday 8:30	The day 17:00
			EveryMonday-Friday 17:30	The day 21:30
			Each month 1st 17:30	The day 23:30

Copy ↓ ↑ Add, Change

☐ Daily Everyday  
☐ Weekly Every Monday - Monday  
☐ Specified date Each month 1st  
☐ Specified week Each month first Monday - Monday

Add Delete Copy Change To upper To lower

OK Cancel

**Caution**

- Up to eight Constantly Active Disk Terms per an Eco-mode schedule can be set.
- The same time cannot be specified for the start and end time.
- If the setting that passes Sunday is specified for the start and end week, an error screen appears.
- If the [Add] button is clicked in the following conditions, an error screen appears.
  - When the template is not selected.
  - When there are already eight constantly active disk terms.
- If the [Delete] or [Copy] button is clicked in the following conditions, an error screen appears.
  - When the constantly active disk term is not selected.
- If the [Change] button is clicked in the following conditions, an error screen appears.
  - When the constantly active disk term is not selected.
  - When the template is not selected.
- If the [To upper] button is clicked in the following conditions, an error screen appears.
  - When the constantly active disk term is not selected.
  - When the selected constantly active disk term is displayed in the first of the list.
- If the [To lower] button is clicked in the following conditions, an error screen appears.
  - When the constantly active disk term is not selected.
  - When the selected constantly active disk term is displayed in the end of the list.

- 4 Click the [OK] button after the settings are completed.

→ The [Set Eco-mode Schedule (List)] screen appears. (Not yet updated in the ETERNUS DX400/DX8000 series.)

Repeat Steps 2 to 4 to add more Eco-mode schedules.

**Caution**



If existing schedule name is specified and the [OK] button is clicked, an error screen appears.

- 5 Click the [Set] button to register.

→ The [Set Eco-mode Schedule (Check)] screen appears.  
The added Eco-mode schedule is displayed with a yellow background.

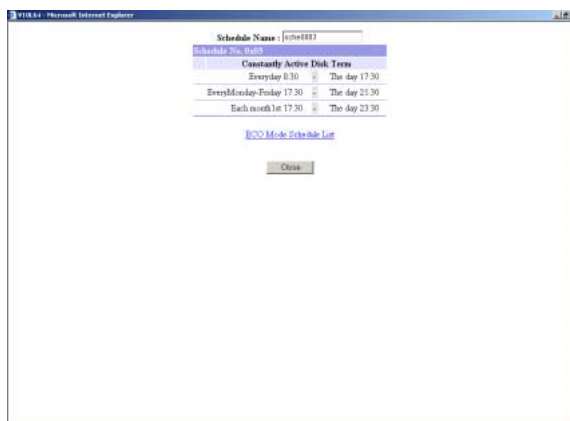
- 6 Click the [OK] button.

→ The [Set Eco-mode Schedule (Updating Configuration Information)] screen appears.  
After the process is successfully completed, the [Set Eco-mode Schedule (Result)] screen appears.

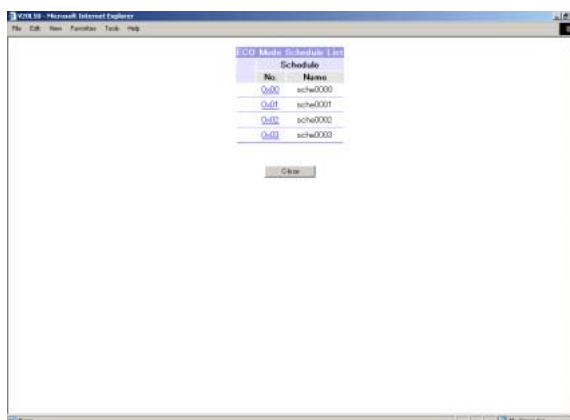


Note

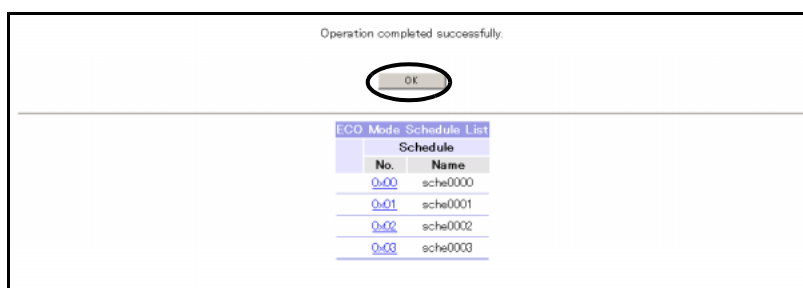
- Clicking the [Schedule No.] link on the [Set Eco-mode Schedule (Check)] screen displays the Eco-mode setting value in another window.



- Clicking the [Eco-mode Schedule List] link on the [Set Eco-mode Schedule (Display)] screen displays the list of Eco-mode schedule.



**7** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 6.5.2.2 Delete Eco-mode Schedule

This section describes procedure to delete Eco-mode schedule.

#### Procedure

- 1 Click [Set Eco-mode Schedule] under the Eco-mode in the [Settings] menu.  
→ The [Set Eco-mode Schedule (List)] screen appears.
- 2 Select the checkbox for the Eco-mode schedule to be deleted (multiple selection can be made), and click the [Delete] button.

Schedule	
No.	Name
<input checked="" type="checkbox"/> 0x00	sche0000
<input checked="" type="checkbox"/> 0x01	sche0001
<input type="checkbox"/> 0x02	sche0002

Addition Schedule No. 0x03  
Addition Schedule Name

Add Delete Set Menu

→ The [Set Eco-mode Schedule (List)] screen appears as the selected Eco-mode schedule is deleted. (Not updated in the ETERNUS DX400/DX8000 series yet.)

#### Caution

- The Eco-mode schedule that is already assigned to the RAID group cannot be deleted (the checkbox for deletion will not be displayed).
- The Eco-mode schedule that is already assigned to the Thin Provisioning Pool cannot be deleted (the checkbox for deletion will not be displayed).
- When the [Delete] button is clicked without selecting the Eco-mode schedule to be deleted, an error screen appears.
- When no Eco-mode schedule is registered, the [Delete] button will not be displayed.

- 3** Click the [Set] button to delete Eco-mode schedule.

ECO Mode Schedule List	
Schedule	
No.	Name
<a href="#">0x00</a>	sche0000
<a href="#">0x01</a>	sche0001

Addition Schedule No.

Addition Schedule Name

→ The [Set Eco-mode Schedule (Check)] screen appears.  
Refer to ["A.29.1 Set Eco-mode Schedule \(Set\) Screen" \(page 786\)](#) for screen details.

- 4** Click the [OK] button.

Please confirm that you wish to perform this operation.

ECO Mode Schedule List	
Schedule	
No.	Name
<a href="#">0x00</a>	sche0000
<a href="#">0x01</a>	sche0001

→ The [Set Eco-mode Schedule (Updating Configuration Information)] screen appears.  
After the process is successfully completed, the [Set Eco-mode Schedule (Result)] screen appears.

#### Note

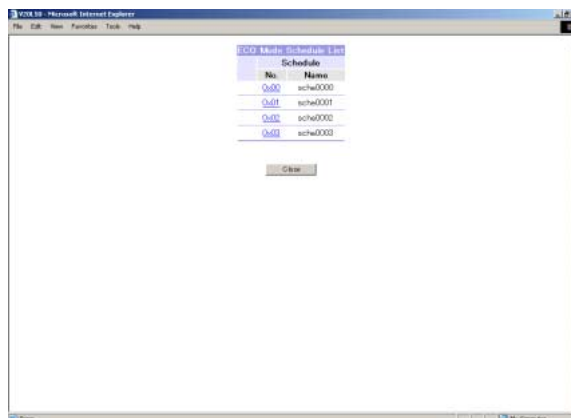
- Clicking the [Schedule No.] link on the [Set Eco-mode Schedule (Check)] screen displays the Eco-mode setting value in another window.

Schedule Name : [sche0001]

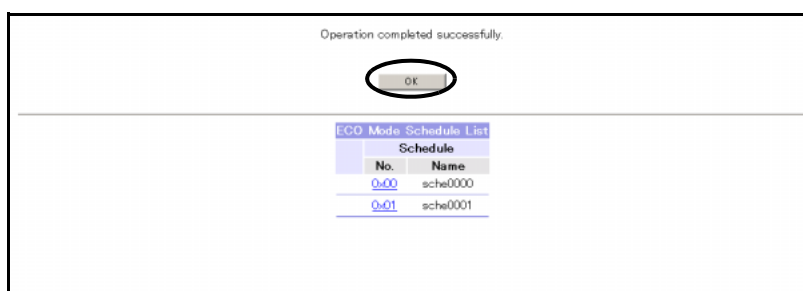
Constantly Active Disk Term	
Everyday 0:30	The day 17:30
EveryMonday-Friday 17:30	The day 21:30
Each month 1st 17:30	The day 23:30

[ECO Mode Schedule List](#)

- Clicking the [Eco-mode Schedule List] link on the [Set Eco-mode Schedule (Display)] screen displays the list of Eco-mode schedule.



- 5** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

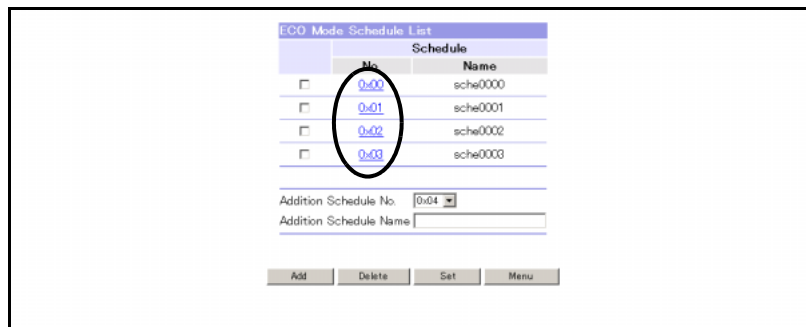
### 6.5.2.3 Change Eco-mode Schedule

This section describes procedure to change Eco-mode schedule.

#### Procedure

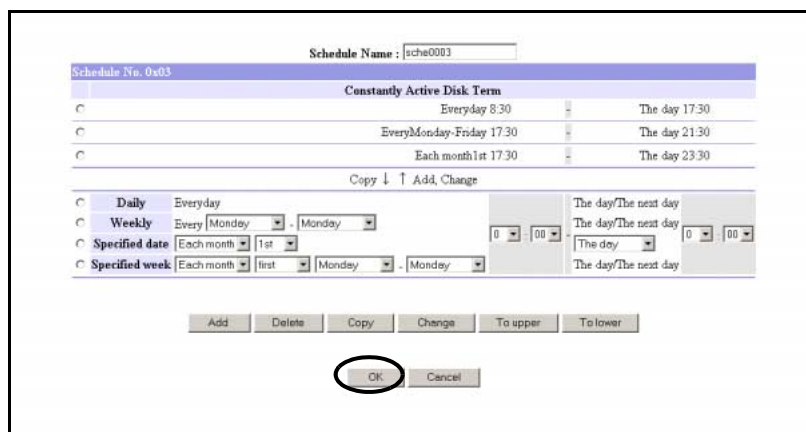
- 1** Click [Set Eco-mode Schedule] under the Eco-mode in the [Settings] menu.  
→ The [Set Eco-mode Schedule (List)] screen appears.

- 2** Click the [Schedule No.] link for the Eco-mode schedule to be changed.



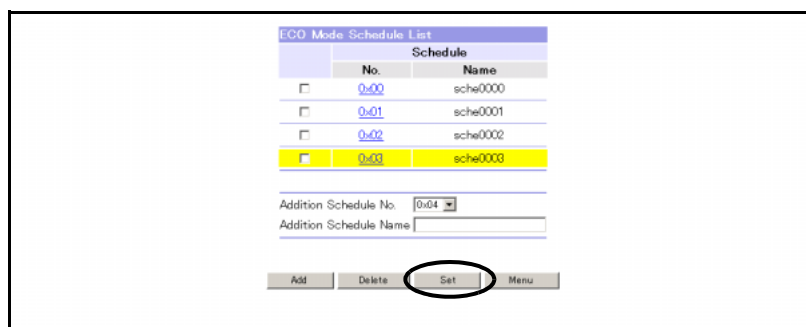
→ The [Set Eco-mode Schedule (Set)] screen appears.  
Refer to ["A.29.1 Set Eco-mode Schedule \(Set\) Screen" \(page 786\)](#) for screen details.

- 3** Change the Eco-mode schedule and click the [OK] button.



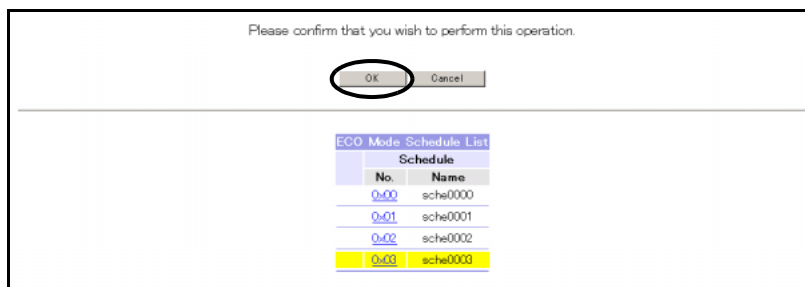
→ The [Set Eco-mode Schedule (List)] screen appears. (Not yet updated in the ETERNUS DX400/DX8000 series.)  
Repeat Step 2 through Step 3 to change more Eco-mode schedules.

- 4** Click the [Set] button to register.



→ The [Set Eco-mode Schedule (Check)] screen appears.  
The changed Eco-mode schedule is displayed with a yellow background.

**5** Click the [OK] button.



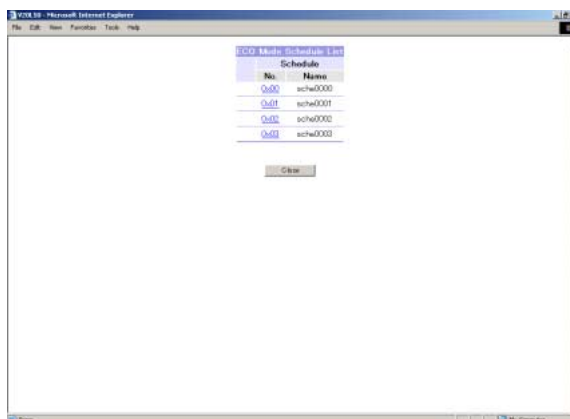
→ The [Set Eco-mode Schedule (Updating Configuration Information)] screen appears. After the process is successfully completed, the [Set Eco-mode Schedule (Result)] screen appears.

**Note**

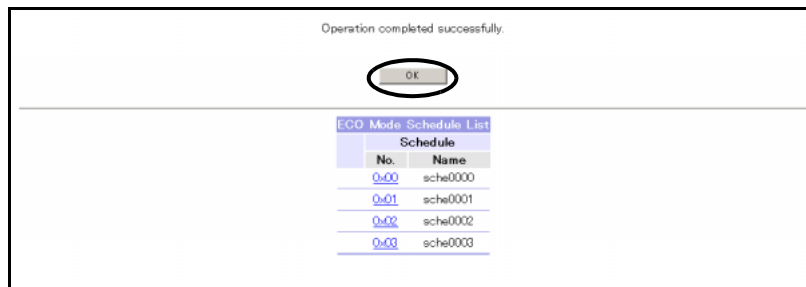
- Clicking the [Schedule No.] link on the [Set Eco-mode Schedule (Check)] screen displays the Eco-mode setting value in another window.



- Clicking the [Eco-mode Schedule List] link on the [Set Eco-mode Schedule (Display)] screen displays the list of Eco-mode schedule.



**6** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 6.5.3 Set RAID Group-Eco-mode

This function sets the Eco-mode schedule that is specified in the "Set Eco-mode Schedule" function in the RAID group and runs the schedule.

By specifying the Eco-mode schedule in the RAID group, disk motors in that RAID group can be activated according to the schedule.

**Caution**



- Eco-mode is only available for Open/SDV Usage RAID groups. To use Eco-mode, the storage system must contain at least one Open or SDV Usage RAID group.
- To set the RAID Group-Eco-mode schedule, install at least one Eco-mode schedule in the device.
- Occurrence of any of the following on an Eco-mode RAID group (disk drive motors on) will prevent the disk drive motors from being stopped based on the Eco-mode settings. Eco-mode will be re-enabled when the interrupting process is resolved (finished, etc.):
  - Target RAID group status is other than "Available"
  - Rebuild or copyback is being executed on the target RAID group
  - LDE is being executed on the target RAID group
  - Volumes in the target RAID group are being formatted
  - Volumes in the target RAID group are under RAID Migration
  - Advanced Copy is being actively performed (when copy status is other than "Suspended" or "Tracking") on volumes in the target RAID Group
  - Volumes in the target RAID group are being encrypted
  - Snap Data Volumes are registered in the target RAID group

- Occurrence of any of the following on an Eco-mode RAID group (disk drive motors stopped) will cause the disk drive motors to be started. Eco-mode will be re-enabled when the interrupting process is resolved (finished, etc.):
  - Volume configuration is being changed (RAID groups being deleted or registered, volumes being deleted or formatted, etc.)
  - Host access is requested
  - Advanced Copy (EC/REC) is started or resumed
  - Snap Data Pool Volume is registered
- If the Snap Data Pool Volume is set for the RAID Group, the Eco-mode schedule can be specified, but the Eco-mode is disabled (disk motors are not activated nor stopped). When the Open Volumes, Snap Data Volumes, and/or Snap Data Pool Volumes are registered in the RAID Group with the Eco-mode schedule setting, the Eco-mode is enabled after deleting all the Snap Data Pool Volumes.
- If a RAID Group is configured with SSD, the Eco-mode cannot be set.
- Eco-mode cannot be set for the RAID Group configured with a system disk.
- Eco-mode cannot be set for the RAID Group registered as a REC Disk Buffer.
- Eco-mode cannot be set for the RAID Group registered in Thin Provisioning Pool (TPP) using the [Set RAID Group-Eco-mode] function. Set the Eco-mode for TPP using the [Set Thin Provisioning Pool-Eco-mode] menu.
- Eco-mode cannot be set for the RAID Group registered in a Thin Provisioning Pool.
- When the [External] management (disk motor management by the Storage Foundation Software ETERNUS SF(\*1)) is selected, it is possible to change to the RAID Group-Eco-mode schedule. However, when the RAID Group-Eco-mode schedule is selected, it is impossible to change to the [External] management.  
\*1: ETERNUS SF Storage Cruiser
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, RAID Groups to which the Eco-mode can be set differ depending on the current user account.
  - When logged on using a Total Administrator account, the Eco-mode can be set for all the RAID Groups that are assigned to Resource Domains.
  - When logged on using a Resource Domain Administrator account, the Eco-mode can be set only for the RAID Groups that are assigned to the relevant Resource Domain and the Shared Resource.

---

 Note

- Eco-mode for the entire device is specified on the [Set Common Eco-mode] menu. Eco-mode for the RAID group is enabled when the Eco-mode for the entire device is enabled and the Eco-mode for the RAID group is "ON".
  - Set the Eco-mode schedule on the [Set Eco-mode Schedule] menu.
-

The following explains the setting procedures for the RAID Group-Eco-mode.  
The following functions can be set using this menu.

- [Batch setting of Eco-mode schedule in the RAID group](#)
- [Manual setting of Eco-mode schedule in the RAID group](#)

Procedures for each operation are described below.

### 6.5.3.1 Batch setting of Eco-mode schedule in the RAID group

This section describes operating procedure for batch setting of Eco-mode schedule in the RAID group.

#### Procedure

- 1** Click [Set RAID Group-Eco-mode] under the Eco-mode in the [Settings] menu.  
→ The [Set RAID Group-Eco-mode (Set)] screen appears.  
Refer to ["A.30.1 Set RAID Group-Eco-mode \(Set\) Screen" \(page 790\)](#) for screen details.
- 2** Set the following items in the [Set RAID Group-Eco-mode] and click the [Execute] button.
  - From RAID Group#  
Set the RAID group number to be the start position in the batch setting of the Eco-mode schedule range.
  - To RAID Group#  
Set the RAID group number to be the end position in the batch setting of the Eco-mode schedule range.
  - [Eco-mode Schedule (ON/OFF)] check box  
Selects ON/OFF of the Eco-mode schedule to be set in the specified range.
  - [Eco-mode Schedule (Schedule)] list box  
Selects the Eco-mode schedule to set to the specified range.
  - [Eco-mode Schedule] radio button  
Selects the setting target.

**Set RAID Group-ECO Mode**

From: RAID Group# 0x [ ] To: RAID Group# 0x [ ]

ECO Mode Schedule ON/OFF - Schedule

☐ None ☐ ON/OFF only ☐ Schedule only ☐ Both

**Execute**

RAID Group No.	RAID Name	RAID Level	Status	ECO Mode Schedule ON/OFF - Schedule	Disk Status	Control Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No.	TPP Name
0x000	raid_000	RAID1	Available	-	active	-	CM#0-CPU#0	136960	OFF	Mainframe, MVV	-	-
0x001	raid_001	RAID1	Available	-	active	-	CM#3-CPU#1	136960	OFF	Mainframe, MVV	-	-
0x002	raid_002	RAID1	Available	<input checked="" type="checkbox"/> - [External]	active	ON	CM#1-CPU#0	136960	-	Open, SDV	-	-
0x003	raid_003	RAID1	Available	<input checked="" type="checkbox"/> - [External]	idle	OFF	CM#2-CPU#1	136960	-	Open	-	-
0x004	raid_004	RAID1	Available	<input checked="" type="checkbox"/> - [0x01 - Sche001]	active	-	CM#2-CPU#0	136960	-	SDV	-	-
0x005	raid_005	RAID1	Available	<input checked="" type="checkbox"/> - [0x02 - Sche002]	idle	-	CM#1-CPU#1	136960	-	Open, SDV	-	-
0x006	raid_006	RAID1	Available	<input checked="" type="checkbox"/> - [0x03 - Sche003]	active	-	CM#3-CPU#0	136960	-	Open	-	-
0x007	raid_007	RAID1	Available	<input type="checkbox"/> - [None]	active	-	CM#0-CPU#1	136960	-	SDV	-	-
0x008	raid_008	RAID1	Available	<input type="checkbox"/> - [None]	active	-	CM#0-CPU#0	136960	-	Open, SDV	-	-
0x009	raid_009	RAID1+0	Available	<input checked="" type="checkbox"/> - [0x11 - Sche011]	active	-	CM#3-CPU#1	3360768	-	-	0x01 pool01	-

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[Set](#) [Menu](#)

→ RAID group list will be updated.

RAID Group where the Eco-mode schedule has been changed is displayed with a yellow background.

### Caution

- All the Eco-mode schedules assigned to Resource Domains are displayed in the list box when logged on the ETERNUS DX400/DX8000 series, in which the Resource Domains are registered, using a Total Administrator account. When logged on using a Resource Domain Administrator account, Eco-mode schedules that are assigned to the same Resource Domain in which the user account is assigned, and Eco-mode schedules that are assigned to the Shared Resource, are displayed in the list box. When RAID Groups, which are assigned to the same Resource Domain as the selected Eco-mode, are included in the specified range, clicking the [Execute] button changes the Eco-mode settings for these RAID Groups. Note that when the selected Eco-mode schedule is a Shared Resource, all the Eco-mode settings that can be managed by the current user account in the specified range will be changed. The Eco-mode schedule can be set "ON" or "OFF" regardless of Resource Domains.
- If the [Execute] button is clicked in the following conditions, an error screen appears.
  - Both or one of the "From: RAID Group#" or "To: RAID Group#" text boxes is blank
  - Characters other than hexadecimal number are specified in the "From: RAID Group#" or "To: RAID Group#" field
  - If there are no RAID Groups where the Eco-mode schedule can be set in the range specified with "From: RAID Group#" and "To: RAID Group#"
  - When the [Eco-mode Schedule] radio button is not selected



Note

- If the Storage Foundation Software ETERNUS SF manages the Eco-mode, [External] management is displayed for the relevant RAID Groups in the RAID Group list. By using batch settings, [External] management can be changed to the RAID Group-Eco-mode setting.
- If the Eco-mode is set for the Thin Provisioning Pool (TPP), the same Eco-mode schedule number and Eco-mode schedule name are displayed for all the RAID Groups registered in the TPP in text format.

3 Click the [Set] button.

The screenshot shows the 'Set RAID Group-Eco Mode' dialog box at the top, which includes fields for 'From: RAID Group# 0x007' and 'To: RAID Group# 0x008', a 'Set Range' dropdown, and radio buttons for 'ON/OFF only', 'Schedule only', and 'Both'. Below the dialog is the 'RAID Group List' table. The table has columns for RAID Group No., Name, Level, Status, ECO Mode Schedule ON/OFF - Schedule, Disk Status, Control Status, Controlling CM, Capacity (MB), DVCF Mode, Usage, and TPP No. Name. Rows 0x007 and 0x008 are highlighted in yellow, indicating they have been selected for modification. At the bottom of the table, there is a 'Set' button circled in red.

RAID Group No.	Name	Level	Status	ECO Mode Schedule ON/OFF - Schedule	Disk Status	Control Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No.	TPP Name
0x000	raid_000	RAID1	Available	-	active	-	CM#0-CPU#0	136960	OFF	Mainframe, MVV	-	-
0x001	raid_001	RAID1	Available	-	active	-	CM#3-CPU#1	136960	OFF	Mainframe, MVV	-	-
0x002	raid_002	RAID1	Available	[External]	active	ON	CM#1-CPU#0	136960	-	Open, SDV	-	-
0x003	raid_003	RAID1	Available	[External]	idle	OFF	CM#2-CPU#1	136960	-	Open	-	-
0x004	raid_004	RAID1	Available	[0x01 - Sche001]	active	-	CM#2-CPU#0	136960	-	SDV	-	-
0x005	raid_005	RAID1	Available	[0x02 - Sche002]	idle	-	CM#1-CPU#1	136960	-	Open, SDV	-	-
0x006	raid_006	RAID1	Available	[0x03 - Sche003]	active	-	CM#3-CPU#0	136960	-	Open	-	-
0x007	raid_007	RAID1	Available	[0x04 - Sche004]	active	-	CM#0-CPU#1	136960	-	SDV	-	-
0x008	raid_008	RAID1	Available	[0x04 - Sche004]	active	-	CM#0-CPU#0	136960	-	Open, SDV	-	-
0x009	raid_009	RAID1+0	Available	0x11 - Sche011	active	-	CM#3-CPU#1	3360768	-	-	0x01 pool01	-

The RAID Group where the Eco-mode schedule has been changed is displayed with a yellow background.

→ The [Set RAID Group-Eco-mode (Check)] screen appears.

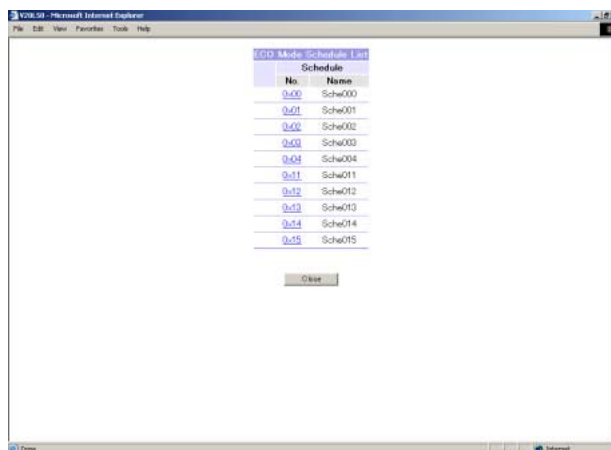
Caution

When clicking the [Set] button in the following conditions, an error screen appears.

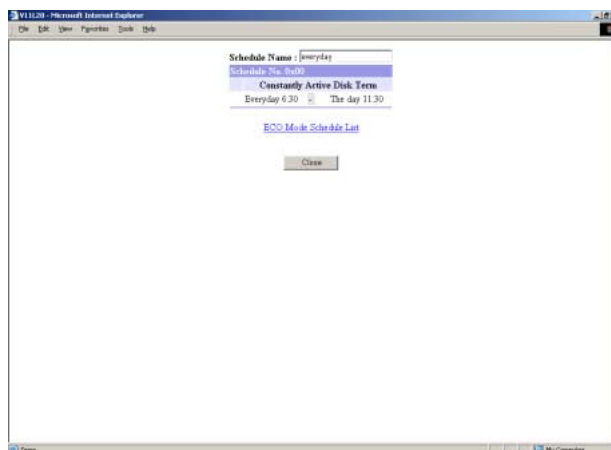
- When the [Eco-mode Schedule (ON/OFF)] checkbox is selected and [None] is selected for the [Eco-mode Schedule (Schedule)] list box
- When there is no RAID Group where the Eco-mode schedule has been changed

 Note

- Clicking the [Eco-mode Schedule List] link on the [Set RAID Group-Eco-mode (Set)] screen displays the Eco-mode schedule list in another window.



- Clicking the [Schedule No.] link on the [Set RAID Group-Eco-mode (Display List)] screen displays the target Eco-mode schedule settings.



4 Click the [OK] button.

Please confirm that you wish to perform this operation.

RAID Group List													
RAID Group No.	Name	RAID Level	Status	ECO Mode ON/OFF	Schedule	Disk Status	Control Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No.	Name
0x000 raid_000	RAID1	Available	-	active	-	CM#0-CPU#0	136960	OFF	Mainframe, MVV	-	-	-	-
0x001 raid_001	RAID1	Available	-	active	-	CM#3-CPU#1	136960	OFF	Mainframe, MVV	-	-	-	-
0x002 raid_002	RAID1	Available	<input checked="" type="checkbox"/> - External	active	ON	CM#1-CPU#0	136960	-	Open, SDV	-	-	-	-
0x003 raid_003	RAID1	Available	<input checked="" type="checkbox"/> - External	idle	OFF	CM#2-CPU#1	136960	-	Open	-	-	-	-
0x004 raid_004	RAID1	Available	<input checked="" type="checkbox"/> - 0x01 - Sche001	active	-	CM#2-CPU#0	136960	-	SDV	-	-	-	-
0x005 raid_005	RAID1	Available	<input checked="" type="checkbox"/> - 0x02 - Sche002	idle	-	CM#1-CPU#1	136960	-	Open, SDV	-	-	-	-
0x006 raid_006	RAID1	Available	<input checked="" type="checkbox"/> - 0x03 - Sche003	active	-	CM#3-CPU#0	136960	-	Open	-	-	-	-
0x007 raid_007	RAID1	Available	<input checked="" type="checkbox"/> - 0x04 - Sche004	active	-	CM#0-CPU#1	136960	-	SDV	-	-	-	-
0x008 raid_008	RAID1	Available	<input checked="" type="checkbox"/> - 0x04 - Sche004	active	-	CM#0-CPU#0	136960	-	Open, SDV	-	-	-	-
0x009 raid_009	RAID1+0	Available	0x11 - Sche011	active	-	CM#3-CPU#1	3360768	-	-	-	0x01 pool_01	-	-

[ECO Mode Schedule List](#)

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→ The [Set RAID Group-Eco-mode (Updating Configuration Information)] screen appears. After the process is successfully completed, the [Set RAID Group-Eco-mode (Result)] screen appears.



Note

- Clicking the [Schedule] link in the RAID Group List allows the target Eco-mode schedule settings to be checked.
- Clicking the [Eco-mode Schedule List] link on the [Set RAID Group-Eco-mode (Display)] screen allows the Eco-mode schedule list to be checked.

5 Click the [OK] button.

Operation completed successfully.

RAID Group List													
RAID Group No.	Name	RAID Level	Status	ECO Mode ON/OFF	Schedule	Disk Status	Control Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No.	Name
0x000 raid_000	RAID1	Available	-	active	-	CM#0-CPU#0	136960	OFF	Mainframe, MVV	-	-	-	-
0x001 raid_001	RAID1	Available	-	active	-	CM#3-CPU#1	136960	OFF	Mainframe, MVV	-	-	-	-
0x002 raid_002	RAID1	Available	<input checked="" type="checkbox"/> - External	active	ON	CM#1-CPU#0	136960	-	Open, SDV	-	-	-	-
0x003 raid_003	RAID1	Available	<input checked="" type="checkbox"/> - External	idle	OFF	CM#2-CPU#1	136960	-	Open	-	-	-	-
0x004 raid_004	RAID1	Available	<input checked="" type="checkbox"/> - 0x01 - Sche001	active	-	CM#2-CPU#0	136960	-	SDV	-	-	-	-
0x005 raid_005	RAID1	Available	<input checked="" type="checkbox"/> - 0x02 - Sche002	idle	-	CM#1-CPU#1	136960	-	Open, SDV	-	-	-	-
0x006 raid_006	RAID1	Available	<input checked="" type="checkbox"/> - 0x03 - Sche003	active	-	CM#3-CPU#0	136960	-	Open	-	-	-	-
0x007 raid_007	RAID1	Available	<input checked="" type="checkbox"/> - 0x04 - Sche004	active	-	CM#0-CPU#1	136960	-	SDV	-	-	-	-
0x008 raid_008	RAID1	Available	<input checked="" type="checkbox"/> - 0x04 - Sche004	active	-	CM#0-CPU#0	136960	-	Open, SDV	-	-	-	-
0x009 raid_009	RAID1+0	Available	0x11 - Sche011	active	-	CM#3-CPU#1	3360768	-	-	-	0x01 pool_01	-	-

[ECO Mode Schedule List](#)

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→ Returns to the [Menu] screen.

End of procedure

### 6.5.3.2 Manual setting of Eco-mode schedule in the RAID group

This section describes operating procedure for manual setting of Eco-mode schedule in the RAID group.

#### Procedure

- 1 Click [Set RAID Group-Eco-mode] under the Eco-mode in the [Settings] menu.  
→ The [Set RAID Group-Eco-mode (Set)] screen appears.  
Refer to ["A.30.1 Set RAID Group-Eco-mode \(Set\) Screen" \(page 790\)](#) for screen details.
- 2 Specify the following items in the RAID group to set the Eco-mode schedule from the [RAID Group List].
  - [Eco-mode Schedule (ON/OFF)] check box  
Select ON/OFF of Eco-mode schedule to be set.
  - [Eco-mode Schedule (Schedule)] list box  
Select the Eco-mode schedule to be specified.

**Set RAID Group-Eco Mode**

From : RAID Group# 0x To : RAID Group# 0x

Set Range ECO Mode Schedule ON/OFF - Schedule

☐ None ☒ ON/OFF only ☐ Schedule only ☐ Both

**RAID Group List**

RAID Group No.	Name	RAID Level	Status	ECO Mode Schedule ON/OFF - Schedule	Disk Status	Control Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No.	TPP Name
0x000	raid_000	RAID1	Available	-	active	-	CM#0-CPU#0	136960	OFF	Mainframe, MVV	-	-
0x001	raid_001	RAID1	Available	-	active	-	CM#3-CPU#1	136960	OFF	Mainframe, MVV	-	-
0x002	raid_002	RAID1	Available	<input checked="" type="checkbox"/> - [External]	active	ON	CM#1-CPU#0	136960	-	Open, SDV	-	-
0x003	raid_003	RAID1	Available	<input checked="" type="checkbox"/> - [External]	idle	OFF	CM#2-CPU#1	136960	-	Open	-	-
0x004	raid_004	RAID1	Available	<input checked="" type="checkbox"/> - [0x01 - Sche001]	active	-	CM#2-CPU#0	136960	-	SDV	-	-
0x005	raid_005	RAID1	Available	<input checked="" type="checkbox"/> - [0x02 - Sche002]	idle	-	CM#1-CPU#1	136960	-	Open, SDV	-	-
0x006	raid_006	RAID1	Available	<input checked="" type="checkbox"/> - [0x03 - Sche003]	active	-	CM#3-CPU#0	136960	-	Open	-	-
0x007	raid_007	RAID1	Available	<input checked="" type="checkbox"/> - [0x04 - Sche004]	active	-	CM#0-CPU#1	136960	-	SDV	-	-
0x008	raid_008	RAID1	Available	<input checked="" type="checkbox"/> - [0x04 - Sche004]	active	-	CM#0-CPU#0	136960	-	Open, SDV	-	-
0x009	raid_009	RAID1+0	Available	<input checked="" type="checkbox"/> - [0x01 - Sche001]	active	-	CM#3-CPU#1	3360768	-	-	0x01 pool01	-

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#### Caution



When Resource Domains are registered in the ETERNUS DX400/DX8000 series, only the Eco-mode schedules that are assigned to the same Resource Domain as the relevant RAID Group, and only the Eco-mode schedules that are assigned to the Shared Resource, are displayed in the list box.



Note

- If the Storage Foundation Software ETERNUS SF manages the Eco-mode, [External] management is displayed for the relevant RAID Groups in the RAID Group list. By using manual settings, [External] management can be changed to the RAID Group-Eco-mode setting.
- If the Eco-mode is set for the Thin Provisioning Pool (TPP), the same Eco-mode schedule number and Eco-mode schedule name are displayed for all the RAID Groups registered in the TPP in text format.

3 Click the [Set] button.

Set RAID Group-Eco Mode

From : RAID Group# 0x To : RAID Group# 0x

ECO Mode Schedule ON/OFF - Schedule

Set Range

☐ ON/OFF only ☐ Schedule only ☐ Both

Execute

RAID Group No.	Name	Level	Status	ECO Mode Schedule ON/OFF	Schedule	Disk Status	Control Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No.	TPP Name
0x000 raid_000	RAID1	Available	-	active	-	CM#0-CPU#0	136960	OFF	Mainframe, MVV	-	-	-	-
0x001 raid_001	RAID1	Available	-	active	-	CM#3-CPU#1	136960	OFF	Mainframe, MVV	-	-	-	-
0x002 raid_002	RAID1	Available	<input checked="" type="checkbox"/>	[External]	active	ON	CM#1-CPU#0	136960	-	Open, SDV	-	-	-
0x003 raid_003	RAID1	Available	<input checked="" type="checkbox"/>	[External]	idle	OFF	CM#2-CPU#1	136960	-	Open	-	-	-
0x004 raid_004	RAID1	Available	<input checked="" type="checkbox"/>	[0x01 - Sche001]	active	-	CM#2-CPU#0	136960	-	SDV	-	-	-
0x005 raid_005	RAID1	Available	<input checked="" type="checkbox"/>	[0x02 - Sche002]	idle	-	CM#1-CPU#1	136960	-	Open, SDV	-	-	-
0x006 raid_006	RAID1	Available	<input type="checkbox"/>	[None]	active	-	CM#3-CPU#0	136960	-	Open	-	-	-
0x007 raid_007	RAID1	Available	<input checked="" type="checkbox"/>	[0x04 - Sche004]	active	-	CM#0-CPU#1	136960	-	SDV	-	-	-
0x008 raid_008	RAID1	Available	<input checked="" type="checkbox"/>	[0x04 - Sche004]	active	-	CM#0-CPU#0	136960	-	Open, SDV	-	-	-
0x009 raid_009	RAID1+0	Available	<input checked="" type="checkbox"/>	[0x11 - Sche011]	active	-	CM#3-CPU#1	3360768	-	-	0x01 pool01	-	-

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Set Menu

→ The [Set RAID Group-Eco-mode (Check)] screen appears.

Caution

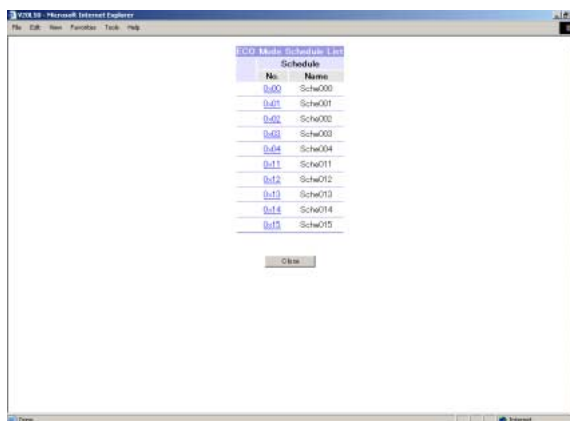
When clicking the [Set] button in the following conditions, an error screen appears.

- When the [Eco-mode Schedule (ON/OFF)] checkbox is selected and [None] is selected for the [Eco-mode Schedule (Schedule)] list box
- When there is no RAID Group where the Eco-mode schedule has been changed

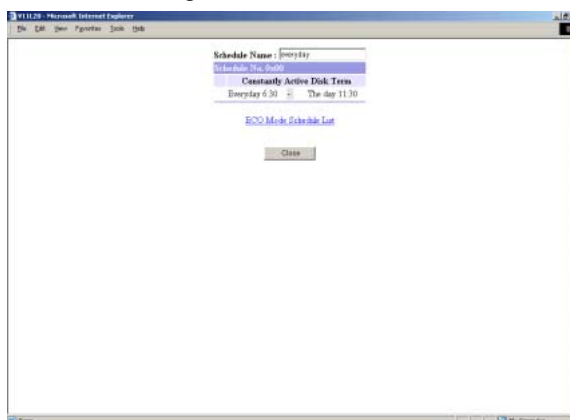


Note

- Clicking the [Eco-mode Schedule List] link on the [Set RAID Group-Eco-mode (Set)] screen displays the Eco-mode schedule list in another window.



- Clicking the [Schedule No.] link on the [Set RAID Group-Eco-mode (Display List)] screen displays the target Eco-mode schedule settings.



#### 4 Click the [OK] button.

Please confirm that you wish to perform this operation.

RAID Group List													
RAID Group No.	Name	RAID Level	Status	ECO Mode ON/OFF	Schedule	Disk Status	Control Status	Controlling CM	Capacity (MB)	DVCF Mode	Usage	TPP No.	TPP Name
0x000 raid_000	RAID1	Available	-	active	-	CM#0-CPU#0	136960	OFF	Mainframe, MVV	-	-	-	-
0x001 raid_001	RAID1	Available	-	active	-	CM#3-CPU#1	136960	OFF	Mainframe, MVV	-	-	-	-
0x002 raid_002	RAID1	Available	<input checked="" type="checkbox"/> - External	active	ON	CM#1-CPU#0	136960	-	Open, SDV	-	-	-	-
0x003 raid_003	RAID1	Available	<input checked="" type="checkbox"/> - External	idle	OFF	CM#2-CPU#1	136960	-	Open	-	-	-	-
0x004 raid_004	RAID1	Available	<input checked="" type="checkbox"/> - 0x01 - Sche001	active	-	CM#2-CPU#0	136960	-	SDV	-	-	-	-
0x005 raid_005	RAID1	Available	<input checked="" type="checkbox"/> - 0x02 - Sche002	idle	-	CM#1-CPU#1	136960	-	Open, SDV	-	-	-	-
0x006 raid_006	RAID1	Available	<input checked="" type="checkbox"/> - None	active	-	CM#3-CPU#0	136960	-	Open	-	-	-	-
0x007 raid_007	RAID1	Available	<input checked="" type="checkbox"/> - 0x04 - Sche004	active	-	CM#0-CPU#1	136960	-	SDV	-	-	-	-
0x008 raid_008	RAID1	Available	<input checked="" type="checkbox"/> - 0x04 - Sche004	active	-	CM#0-CPU#0	136960	-	Open, SDV	-	-	-	-
0x009 raid_009	RAID1+0	Available	0x11 - Sche011	active	-	CM#3-CPU#1	3360768	-	-	-	0x01 pool,01	-	-

[ECO Mode Schedule List](#)

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The RAID Group where the Eco-mode schedule has been changed is displayed with a yellow background.

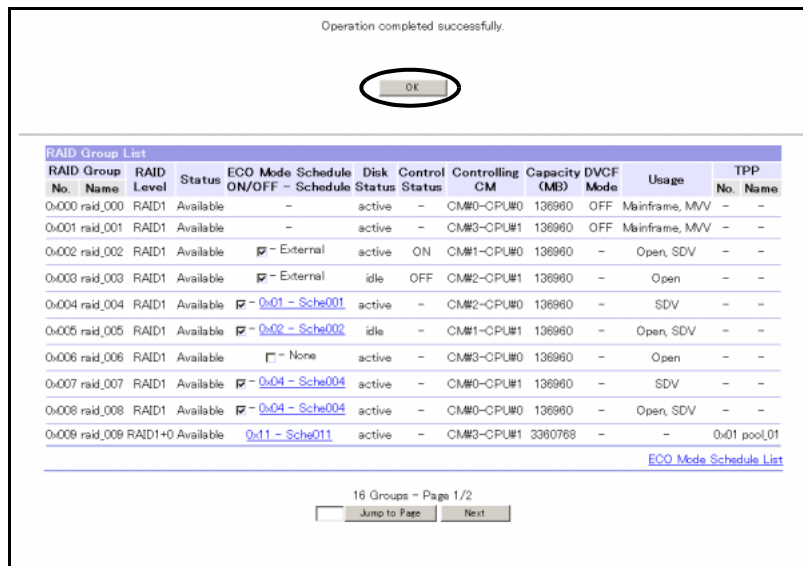
→ The [Set RAID Group-Eco-mode (Updating Configuration Information)] screen appears  
The [Set RAID Group-Eco-mode (Result)] screen appears.



Note

- Clicking the [Schedule] link in the RAID Group List allows the target Eco-mode schedule settings to be checked.
- Clicking the [Eco-mode Schedule List] link on the [Set RAID Group-Eco-mode (Display)] screen allows the Eco-mode schedule list to be checked.

5 Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 6.5.4 Set Thin Provisioning Pool-Eco-mode

This function sets the Eco-mode schedule that is specified in the "Set Eco-mode Schedule" function in the Thin Provisioning Pool and runs the schedule.

ETERNUS DX400/DX8000 series activates the stopped disk motor according to the schedule specified for the Thin Provisioning Pool.

### Caution

- When the Eco-mode schedule is set to Thin Provisioning Pool (TPP), register at least one Eco-mode schedule in the device.
- When the Eco-mode schedule is set to TPP, the same Eco-mode schedule is set for all the RAID Groups belonging to the TPP. Enabling or disabling the Eco-mode, or setting a different Eco-mode schedule in RAID Group units is not allowed.
- If the device status is changed to one of the following while Eco-mode is enabled (and the disk is activated), disks installed in the target TPP will not deactivate the motor based on the Eco-mode settings. Eco-mode will be re-enabled when the interrupting process is resolved (finished, etc.):
  - TPP includes one or more RAID Groups whose status is other than "Available"
  - TPP includes one or more RAID Groups under Rebuild or Copyback
  - TPP includes volumes which are performing Advanced Copy (when copy status is other than "Suspend" or "Tracking")
  - TPP includes disks being formatted

- Occurrence of any of the following on an Eco-mode TPP (disk motors stopped) will cause the disk motors to be started. Eco-mode will be re-enabled when the interrupting process is resolved (finished, etc.):
  - When changing RAID Groups or volume configuration (creating RAID Group, creating, deleting, or formatting volumes, etc.)
  - Host access is requested
  - Advanced Copy (EC/REC) is started or resumed
- If the TPP includes RAID Groups with system disks, the Eco-mode schedule can be specified, but the Eco-mode is disabled. This phenomenon also occurs when RAID Groups with system disks are added to TPP using capacity expansion or applying configuration. In these conditions, the disk motor is enabled continuously.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, TPPs to which the Eco-mode can be set differ depending on the current user account.
  - When logged on using a Total Administrator account, the Eco-mode can be set for all the TPPs that are assigned to Resource Domains.
  - When logged on using a Resource Domain Administrator account, the Eco-mode can be set only for TPPs that are assigned to the relevant Resource Domain and the Shared Resource.



Note

- Eco-mode for the entire device is specified on the [Set Common Eco-mode] menu. Eco-mode for the Thin Provisioning Pool (TPP) is enabled when the Eco-mode for the entire device is enabled and the Eco-mode for the TPP is "ON".
- Set the Eco-mode schedule in the [Set Eco-mode Schedule] menu.

This section explains [Set Thin Provisioning Pool-Eco-mode] procedures.  
The following settings are available.

- [Batch setting of Eco-mode schedule in the Thin Provisioning Pool](#)
- [Manual setting of Eco-mode schedule in the Thin Provisioning Pool](#)

Procedures for each operation are described below.

#### 6.5.4.1 Batch setting of Eco-mode schedule in the Thin Provisioning Pool

This section describes operating procedures for batch setting of Eco-mode schedule in the Thin Provisioning Pool.

##### Procedure

- 1 Click [Set Thin Provisioning Pool-Eco-mode] under the Eco-mode in the [Settings] menu.
  - The [Set Thin Provisioning Pool-Eco-mode (Set)] screen appears.
  - Refer to ["A.31.1 Set Thin Provisioning Pool-Eco-mode \(Set\) Screen" \(page 793\)](#) for screen details.

**2** Set the following items in the [Set Thin Provisioning Pool-Eco-mode] and click the [Execute] button.

- From TPP No.  
Set the Thin Provisioning Pool number to be the start position in the batch setting of the Eco-mode schedule range.
- To TPP No.  
Set the Thin Provisioning Pool number to be the end position in the batch setting of the Eco-mode schedule range.
- [Eco-mode Schedule (ON/OFF)] check box  
Selects ON/OFF of the Eco-mode schedule to be set in the specified range.
- [Eco-mode Schedule (Schedule)] list box  
Selects the Eco-mode schedule to set to the specified range.
- [Eco-mode Schedule] radio button  
Selects the setting target.

TPP No.	Name	Disk Type	Reliability	Status	ECO Mode Schedule ON/OFF - Schedule	Disk Status	Control Status
0x00	pool_00	Online	High	Available	<input type="checkbox"/> - [None]	active	-
0x01	pool_01	Online	High	Available	<input checked="" type="checkbox"/> - [0x11 - Sched11]	active	-
0x02	pool_02	Online	High	Available	<input checked="" type="checkbox"/> - [0x12 - Sched12]	idle	-
0x03	pool_03	Online	High	Available	<input checked="" type="checkbox"/> - [0x13 - Sched13]	active	-
0x04	pool_04	Online	High	Available	<input type="checkbox"/> - [None]	active	-
0x05	pool_05	Online	High	Available	<input type="checkbox"/> - [None]	active	-
0x06	pool_06	Nearline	Medium	Available	<input type="checkbox"/> - [None]	active	-
0x07	pool_07	Nearline	Medium	Available	<input type="checkbox"/> - [None]	active	-
0x08	pool_08	Nearline	Medium	Available	<input checked="" type="checkbox"/> - [0x15 - Sched15]	active	-
0x09	pool_09	Nearline	Medium	Available	<input checked="" type="checkbox"/> - [0x15 - Sched15]	active	-

→ Thin Provisioning Pool list will be updated.

Thin Provisioning Pool where the Eco-mode schedule has been changed is displayed with a yellow background.

**Caution**

- All the Eco-mode schedules assigned to Resource Domains are displayed in the list box when logged on the ETERNUS DX400/ DX8000 series, in which the Resource Domains are registered, using a Total Administrator account. When logged on using a Resource Domain Administrator account, Eco-mode schedules that are assigned to the same Resource Domain in which the user account is assigned, and Eco-mode schedules that are assigned to the Shared Resource, are displayed in the list box. When TPPs, which are assigned to the same Resource Domain as the selected Eco-mode, are included in the specified range, clicking the [Execute] button changes the Eco-mode settings for these TPPs. Note that when the selected Eco-mode schedule is a Shared Resource, all the Eco-mode settings that can be managed by the current user account in the specified range will be changed. The Eco-mode schedule can be set "ON" or "OFF" regardless of Resource Domains.
- If the [Execute] button is clicked in the following conditions, an error screen appears.
  - Both or one of the "From: TPP No." or "To: TPP No." text boxes is blank
  - Characters other than hexadecimal number are specified in the "From: TPP No." or "To: TPP No." field
  - If there are no TPPs where the Eco-mode schedule can be set in the range specified with "From: TPP No." and "To: TPP No."
  - When the [Eco-mode Schedule] radio button is not selected

**3** Click the [Set] button.

Set Thin Provisioning Pool-ECO Mode

From : TPP No.0x  To : TPP No.0x

Set Range ECO Mode Schedule ON/OFF - Schedule

☒ ON/OFF only ☐ Schedule only ☒ Both

Execute

TPP No.	Name	Disk Type	Reliability	Status	ECO Mode Schedule ON/OFF - Schedule	Disk Status	Control Status
0x00	pool_00	Online	High	Available	<input type="checkbox"/> - [None]	active	-
0x01	pool_01	Online	High	Available	<input checked="" type="checkbox"/> - [0x11 - Sched011]	active	-
0x02	pool_02	Online	High	Available	<input checked="" type="checkbox"/> - [0x12 - Sched012]	idle	-
0x03	pool_03	Online	High	Available	<input checked="" type="checkbox"/> - [0x13 - Sched013]	active	-
0x04	pool_04	Online	High	Available	<input checked="" type="checkbox"/> - [0x14 - Sched014]	active	-
0x05	pool_05	Online	High	Available	<input checked="" type="checkbox"/> - [0x14 - Sched014]	active	-
0x06	pool_06	Nearline	Medium	Available	<input type="checkbox"/> - [None]	active	-
0x07	pool_07	Nearline	Medium	Available	<input type="checkbox"/> - [None]	active	-
0x08	pool_08	Nearline	Medium	Available	<input checked="" type="checkbox"/> - [0x15 - Sched015]	active	-
0x09	pool_09	Nearline	Medium	Available	<input checked="" type="checkbox"/> - [0x15 - Sched015]	active	-

ECO Mode Schedule List

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Jump to Page

The Thin Provisioning Pool where the Eco-mode schedule has been changed is displayed with a yellow background.

→ The [Set Thin Provisioning Pool-Eco-mode (Check)] screen appears.

## Caution

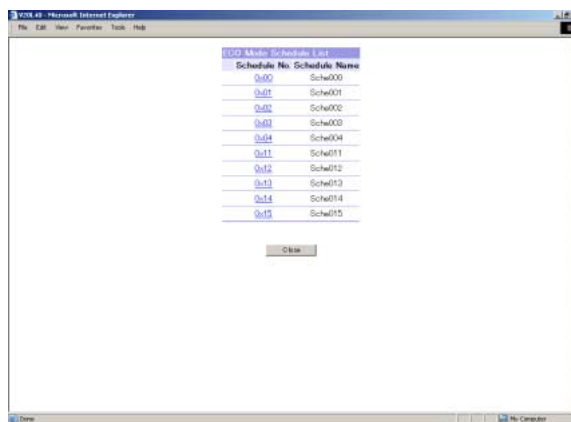


When clicking the [Set] button in the following conditions, an error screen appears.

- When the [Eco-mode Schedule (ON/OFF)] checkbox is selected and [None] is selected for the [Eco-mode Schedule (Schedule)] list box
- When there is no Thin Provisioning Pool where the Eco-mode schedule has been changed

## Note

- Clicking the [Eco-mode Schedule List] link on the [Set Thin Provisioning Pool-Eco-mode (Set)] screen displays the Eco-mode schedule list in another window.



- Clicking the [Schedule No.] link on the [Set Thin Provisioning Pool-Eco-mode (Display List)] screen displays the target Eco-mode schedule settings.



4 Click the [OK] button.

Please confirm that you wish to perform this operation.

Thin Provisioning Pool List							
TPP No.	Name	Disk Type	Reliability	Status	ECO Mode Schedule ON/OFF - Schedule	Disk Status	Control Status
0x00	pool_00	Online	High	Available	<input type="checkbox"/> - None	active	-
0x01	pool_01	Online	High	Available	<input checked="" type="checkbox"/> - 0x11 - Sche011	active	-
0x02	pool_02	Online	High	Available	<input checked="" type="checkbox"/> - 0x12 - Sche012	idle	-
0x03	pool_03	Online	High	Available	<input checked="" type="checkbox"/> - 0x13 - Sche013	active	-
0x04	pool_04	Online	High	Available	<input checked="" type="checkbox"/> - 0x14 - Sche014	active	-
0x05	pool_05	Online	High	Available	<input checked="" type="checkbox"/> - 0x14 - Sche014	active	-
0x06	pool_06	Nearline	Medium	Available	<input type="checkbox"/> - None	active	-
0x07	pool_07	Nearline	Medium	Available	<input type="checkbox"/> - None	active	-
0x08	pool_08	Nearline	Medium	Available	<input checked="" type="checkbox"/> - 0x15 - Sche015	active	-
0x09	pool_09	Nearline	Medium	Available	<input checked="" type="checkbox"/> - 0x15 - Sche015	active	-

[ECO Mode Schedule List](#)

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→ The [Set Thin Provisioning Pool-Eco-mode (Updating Configuration Information)] screen appears. After the process is successfully completed, the [Set Thin Provisioning Pool-Eco-mode (Result)] screen appears.



Note

- Clicking the [Schedule] link in the Thin Provisioning Pool List displays the Eco-mode schedule settings.
- Clicking the [Eco-mode Schedule List] link on the [Set Thin Provisioning Pool-Eco-mode (Display)] screen displays the Eco-mode schedule list.

5 Click the [OK] button.

Operation completed successfully.

Thin Provisioning Pool List							
TPP No.	Name	Disk Type	Reliability	Status	ECO Mode Schedule ON/OFF - Schedule	Disk Status	Control Status
0x00	pool_00	Online	High	Available	<input type="checkbox"/> - None	active	-
0x01	pool_01	Online	High	Available	<input checked="" type="checkbox"/> - 0x11 - Sche011	active	-
0x02	pool_02	Online	High	Available	<input checked="" type="checkbox"/> - 0x12 - Sche012	idle	-
0x03	pool_03	Online	High	Available	<input checked="" type="checkbox"/> - 0x13 - Sche013	active	-
0x04	pool_04	Online	High	Available	<input checked="" type="checkbox"/> - 0x14 - Sche014	active	-
0x05	pool_05	Online	High	Available	<input checked="" type="checkbox"/> - 0x14 - Sche014	active	-
0x06	pool_06	Nearline	Medium	Available	<input type="checkbox"/> - None	active	-
0x07	pool_07	Nearline	Medium	Available	<input type="checkbox"/> - None	active	-
0x08	pool_08	Nearline	Medium	Available	<input checked="" type="checkbox"/> - 0x15 - Sche015	active	-
0x09	pool_09	Nearline	Medium	Available	<input checked="" type="checkbox"/> - 0x15 - Sche015	active	-

[ECO Mode Schedule List](#)

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→ Returns to the [Menu] screen.

End of procedure

### 6.5.4.2 Manual setting of Eco-mode schedule in the Thin Provisioning Pool

This section describes operating procedures for manual setting of Eco-mode schedule in the Thin Provisioning Pool.

#### Procedure

- 1 Click [Set Thin Provisioning Pool-Eco-mode] under the Eco-mode in the [Settings] menu.  
→ The [Set Thin Provisioning Pool-Eco-mode (Set)] screen appears.  
Refer to ["A.31.1 Set Thin Provisioning Pool-Eco-mode \(Set\) Screen" \(page 793\)](#) for screen details.
- 2 Specify the following items in the Thin Provisioning Pool to set the Eco-mode schedule from the [Thin Provisioning Pool List].
  - [Eco-mode Schedule (ON/OFF)] check box  
Select ON/OFF of the Eco-mode schedule to be set.
  - [Eco-mode Schedule (Schedule)] list box  
Select the Eco-mode schedule to be specified.

TPP No.	Name	Disk Type	Reliability	Status	ECO Mode Schedule ON/OFF	Schedule	Disk Status	Control Status
0x00	pool_00	Online	High	Available	<input type="checkbox"/>	None	active	-
0x01	pool_01	Online	High	Available	<input checked="" type="checkbox"/>	[0x11 - Sched011]	active	-
0x02	pool_02	Online	High	Available	<input checked="" type="checkbox"/>	[0x12 - Sched012]	active	-
0x03	pool_03	Online	High	Available	<input checked="" type="checkbox"/>	[0x13 - Sched013]	active	-
0x04	pool_04	Online	High	Available	<input checked="" type="checkbox"/>	[0x14 - Sched014]	active	-
0x05	pool_05	Online	High	Available	<input checked="" type="checkbox"/>	[0x14 - Sched014]	active	-
0x06	pool_06	Nearline	Medium	Available	<input type="checkbox"/>	None	active	-
0x07	pool_07	Nearline	Medium	Available	<input type="checkbox"/>	None	active	-
0x08	pool_08	Nearline	Medium	Available	<input checked="" type="checkbox"/>	[0x15 - Sched015]	active	-
0x09	pool_09	Nearline	Medium	Available	<input checked="" type="checkbox"/>	[0x15 - Sched015]	active	-

#### Caution

When Resource Domains are registered in the ETERNUS DX400/ DX8000 series, only the Eco-mode schedules that are assigned to the same Resource Domain as the relevant TPP, and only the Eco-mode schedules that are assigned to the Shared Resource, are displayed in the list box.

### 3 Click the [Set] button.

TPP No.	Name	Disk Type	Reliability	Status	ECO Mode Schedule ON/OFF - Schedule	Disk Status	Control Status
0x00	pool_00	Online	High	Available	<input type="checkbox"/> - [None]	active	-
0x01	pool_01	Online	High	Available	<input checked="" type="checkbox"/> - [0x11 - Sched011]	active	-
0x02	pool_02	Online	High	Available	<input checked="" type="checkbox"/> - [0x12 - Sched012]	idle	-
0x03	pool_03	Online	High	Available	<input checked="" type="checkbox"/> - [0x13 - Sched013]	active	-
0x04	pool_04	Online	High	Available	<input checked="" type="checkbox"/> - [0x14 - Sched014]	active	-
0x05	pool_05	Online	High	Available	<input checked="" type="checkbox"/> - [0x14 - Sched014]	active	-
0x06	pool_06	Nearline	Medium	Available	<input type="checkbox"/> - [None]	active	-
0x07	pool_07	Nearline	Medium	Available	<input checked="" type="checkbox"/> - [0x15 - Sched015]	active	-
0x08	pool_08	Nearline	Medium	Available	<input checked="" type="checkbox"/> - [0x15 - Sched015]	active	-
0x09	pool_09	Nearline	Medium	Available	<input checked="" type="checkbox"/> - [0x15 - Sched015]	active	-

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Set Menu

→ The [Set Thin Provisioning Pool-Eco-mode (Check)] screen appears.

#### Caution

When clicking the [Set] button in the following conditions, an error screen appears.

- When the [Eco-mode Schedule (ON/OFF)] checkbox is selected and [None] is selected for the [Eco-mode Schedule (Schedule)] list box
- When there is no Thin Provisioning Pool where the Eco-mode schedule has been changed

#### Note

- Clicking the [Eco-mode Schedule List] link on the [Set Thin Provisioning Pool-Eco-mode (Set)] screen displays the Eco-mode schedule list in another window.

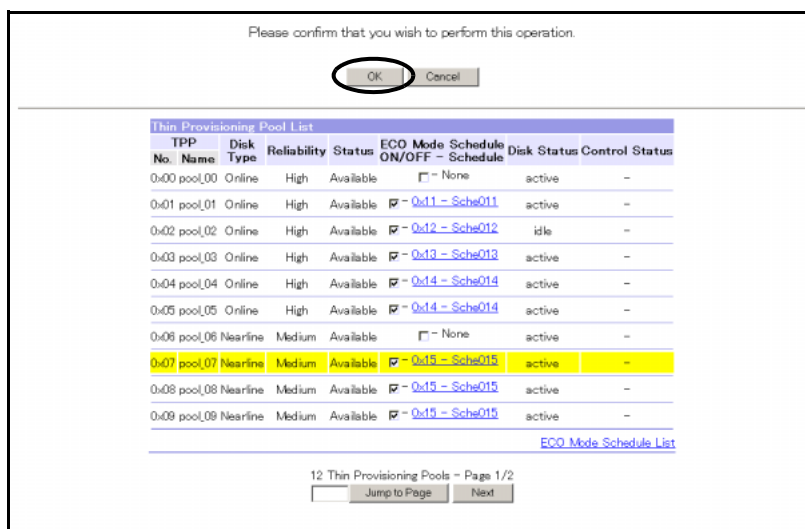
Schedule No.	Schedule Name
0x00	Sched000
0x01	Sched001
0x02	Sched002
0x03	Sched003
0x04	Sched004
0x11	Sched011
0x12	Sched012
0x13	Sched013
0x14	Sched014
0x15	Sched015

Close

- Clicking the [Schedule No.] link on the [Set Thin Provisioning Pool-Eco-mode (Display List)] screen displays the target Eco-mode schedule settings.



#### 4 Click the [OK] button.



The Thin Provisioning Pool where the Eco-mode schedule has been changed is displayed with a yellow background.

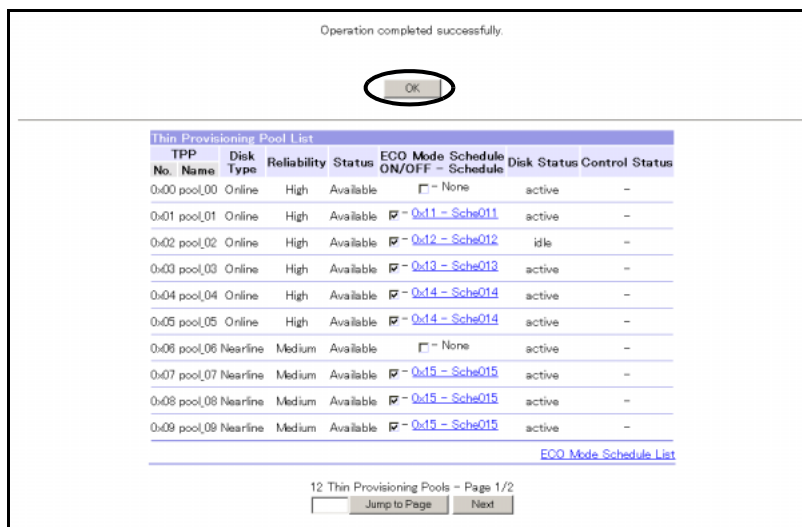
→ The [Set Thin Provisioning Pool-Eco-mode (Updating Configuration Information)] screen appears. After the process is successfully completed, the [Set Thin Provisioning Pool-Eco-mode (Result)] screen appears.



Note

- Clicking the [Schedule] link in the Thin Provisioning Pool List displays the Eco-mode schedule settings.
- Clicking the [Eco-mode Schedule List] link on the [Set Thin Provisioning Pool-Eco-mode (Display)] screen displays the Eco-mode schedule list.

**5** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 6.6 Remote Advanced Copy Configuration

The following settings can be performed from this menu.

- Export Advanced Copy Information
- Create Advanced Copy Information
- Set Advanced Copy Path
- Check Advanced Copy Path

### Caution



To access the Remote Copy functions, register the Advanced Copy License. The following menus are not available until the license has been registered:

- Status
  - Advanced Copy Status
- RAID Settings
  - Set Snap Data Pool
  - Initialize Snap Data Volume
- Advanced Copy Settings
  - Set EC/OPC Priority
  - Set REC Priority
  - Stop EC/OPC Session
  - Stop REC Session
  - Set Advanced Copy Table Size
  - Set REC Buffer
  - Create REC Disk Buffer
  - Format REC Disk Buffer
  - Delete REC Disk Buffer
  - Set Advanced Copy Event Notification
- Remote Advanced Copy Configuration
  - Export Advanced Copy Information
  - Create Advanced Copy Information
  - Set Advanced Copy Path
  - Check Advanced Copy Path



### Note

Follow the order of steps shown below to setup the Advanced Copy Paths:

- (1) Export Advanced Copy Information
- (2) Create Advanced Copy Information
- (3) Set Advanced Copy Path
- (4) Check Advanced Copy Path

## 6.6.1 Export Advanced Copy Information

---

This function exports the device's FC-RA/iSCSI-RA information (FCRA/iSCSI-RA configuration) as a file.

Using this file when creating Advanced Copy Path makes it unnecessary to add device information manually.

---

**Caution**

When logged on using a Resource Domain Administrator account, the [Export Advanced Copy Information] menu is not displayed.

---

**Note**

The FCRA/iSCSI-RA configuration file exported and saved by this function is used as device information, which is added by using [Upload Adaptor Information] of the [Create Advanced Copy Information] function.

---

The following explains the exporting procedures of Advanced Copy Information.

---

**Procedure**

- 1 Click [Export Advanced Copy Information] under the Remote Advanced Copy Configuration in the [Settings] menu.  
→ The [Export Advanced Copy Information (Initial)] screen appears.

---

**Caution**

If neither FC-RA nor iSCSI-RA are defined, the local Box ID is displayed and a message to that effect appears.

---

**2** Click the [Save] button to export FCRA/iSCSI-RA configuration registered in the device.

- When the path is FC-RA only

Download the current FCRA and iSCSI-RA configuration information.

---

Local Box ID				
00E8000M9####E8B0S20A####JI000000100##				

FCRA / iSCSI-RA Configuration				
CM#	CA#	Port#	WWN / iSCSI Name	Mode
CM#0	CA#0	Port#0	2040000B5D6A9001	Auto
		Port#1	2140000B5D6A9001	Auto
	CA#1	Port#0	2050000B5D6A9001	Auto
		Port#1	2150000B5D6A9001	Auto
	CA#2	Port#0	2060000B5D6A9001	Auto
		Port#1	2160000B5D6A9001	Auto
CA#3	Port#0	2060000B5D6A9001	Auto	
	Port#1	2170000B5D6A9001	Auto	
CM#1	CA#0	Port#0	2041000B5D6A9001	Auto
		Port#1	2141000B5D6A9001	Auto
	CA#1	Port#0	2051000B5D6A9001	Auto
		Port#1	2151000B5D6A9001	Auto
	CA#2	Port#0	2061000B5D6A9001	Auto
		Port#1	2161000B5D6A9001	Auto
CA#3	Port#0	2071000B5D6A9001	Auto	
	Port#1	2171000B5D6A9001	Auto	
CM#2	CA#0	Port#0	2042000B5D6A9001	Auto
		Port#1	2142000B5D6A9001	Auto
	CA#1	Port#0	2052000B5D6A9001	Auto
		Port#1	2152000B5D6A9001	Auto
	CA#2	Port#0	2062000B5D6A9001	Auto
		Port#1	2162000B5D6A9001	Auto
CA#3	Port#0	2072000B5D6A9001	Auto	
	Port#1	2172000B5D6A9001	Auto	
CM#3	CA#0	Port#0	2043000B5D6A9001	Auto
		Port#1	2143000B5D6A9001	Auto
	CA#1	Port#0	2053000B5D6A9001	Auto
		Port#1	2153000B5D6A9001	Auto
	CA#2	Port#0	2063000B5D6A9001	Auto
		Port#1	2163000B5D6A9001	Auto
CA#3	Port#0	2073000B5D6A9001	Auto	
	Port#1	2173000B5D6A9001	Auto	

- When the path is iSCSI-RA only

Download the current FCRA and iSCSI-RA configuration information.

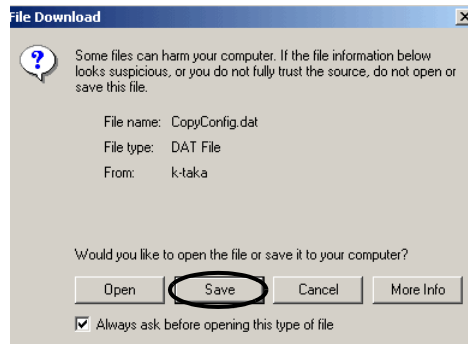
Save Menu

Local Box ID  
 00E8000M9####E8B0S20A####JI000000100##

FCRA / iSCSI-RA Configuration				
CM#	CA#	Port#	WWN / iSCSI Name	Mode
CM#0	CA#0	Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
	CA#1	Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
	CA#2	Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
CM#1	CA#0	Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
	CA#1	Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
	CA#2	Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
CM#2	CA#0	Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
	CA#1	Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
	CA#2	Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
CM#3	CA#0	Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
	CA#1	Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
	CA#2	Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000i	Auto

→ Save dialog is displayed.

- 3 Specify the file name and save the FCRA/iSCSI-RA configuration.  
The default file name is "copyConfig.dat".



**Caution**

- The FCRA/iSCSI-RA configuration file must be saved within one minute from the time the [Save] button is clicked. If the download dialog box is left open for over a minute, the download operation may be terminated with an unsuccessfully downloaded file. If the downloaded file cannot be opened, the download has failed, try the download again.
- When FCRA/iSCSI-RA configuration is not set in the local device, only the Local Box ID is displayed. If you click the [Save] button at this time, only the Local Box ID is saved in the FCRA/iSCSI-RA configuration file.

- 4 Click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

## 6.6.2 Create Advanced Copy Information

This screen creates Advanced Copy path configuration by using ETERNUSmgr. [Advanced Copy path configuration] is a file that shows paths (copy source, copy destination, and copy path etc.) when realizing Remote Advanced Copy (REC). This function not only creates Advanced Copy path configuration of the Local Device but also creates Advanced Copy path configuration between other devices.

■ Restrictions of [Create Advanced Copy Information]

- Maximum number of Remote Devices which can be connected from one Local Device: 16
- Maximum number of paths which can be connected between one Local Device and one Remote Device: 8
- Maximum number of ports which can be connected to one FC-RA port: 32
- Maximum number of ports which can be connected to one iSCSI-RA port: 16
- Maximum number of ports which can be connected from one device: 128

Devices supported as the Local Device and Remote Device of [Create Advanced Copy Information] are shown as follows:

- Local Device: ETERNUS DX410/DX440, ETERNUS DX8100/DX8400/DX8700, ETERNUS4000, ETERNUS8000, ETERNUS6000
- Remote Device: ETERNUS DX410/DX440, ETERNUS DX8100/DX8400/DX8700, ETERNUS4000, ETERNUS8000, ETERNUS3000, ETERNUS6000

However, the ETERNUS6000 and ETERNUS3000 cannot be selected as the Local Device and Remote Device when using "iSCSI-RA" interface.

---

**Caution**



- When creating an Advanced Copy path configuration between different ETERNUS models (such as the ETERNUS DX8700 and ETERNUS6000), the configuration must be created in the newer model (the ETERNUS DX8700 in our example). This is to avoid the [Create Advanced Copy Information] function for the older model refusing to add the newer model information or creating a configuration that is not acceptable to the newer model.
- When the copy source and the copy destination are the same device, Advanced Copy path configuration cannot be created.
- When the Box ID of a device, whose Advanced Copy path configuration has already been set, is changed, Remote Advanced Copy (REC) cannot be executed. Set Advanced Copy path configuration again in all the related devices after remaking the Advanced Copy path configuration with a new Box ID.
- FC-RA and iSCSI-RA should not be used together in the ETERNUS DX410/DX440, ETERNUS DX8100/DX8400/DX8700, ETERNUS4000, and ETERNUS8000.
- When logged on using a Resource Domain Administrator account, the [Create Advanced Copy Information] menu is not displayed.



**Note**

- The Advanced Copy path configuration file which can be read using [Saved File (Read Backup Info)] of this function, can only be created and saved by this function.
  - The adaptor configuration file, which can be read using [Upload Adaptor Information] of this function, can only be exported and saved by [Export Advanced Copy Information] menu.  
When the device to be added is ETERNUS6000, the FCRA information file which was exported and saved from the [Export FCRA Information] menu of the ETERNUS6000 can be used.
  - ETERNUS3000 does not have a function to export and save the adaptor configuration. When adding the ETERNUS3000 device information, use the [Add New Storage System]. The [Upload Adaptor Information] may not be used.
  - When applying the Advanced Copy path configuration created by this function, use the [Set Advanced Copy Path] menu.
  - When deleting the Advanced Copy path configuration of the Local Device, after deleting all the Advanced Copy path configurations of the Local Device by this function, update information in the Local Device using the [Set Advanced Copy Path] menu. The Advanced Copy path configuration of the Local Device will be initialized.
-

The following explains the procedures of [Create Advanced Copy Information].  
The following settings are available.

- [Edit Path Configurations](#)
- [View Path Configurations](#)
- [Add New Storage System](#)
- [Upload Adaptor Information](#)
- [Edit Adaptor Information](#)
- [Delete Storage System](#)
- [Save Advanced Copy Path](#)

Procedures for each operation are described below.

### 6.6.2.1 Edit Path Configurations

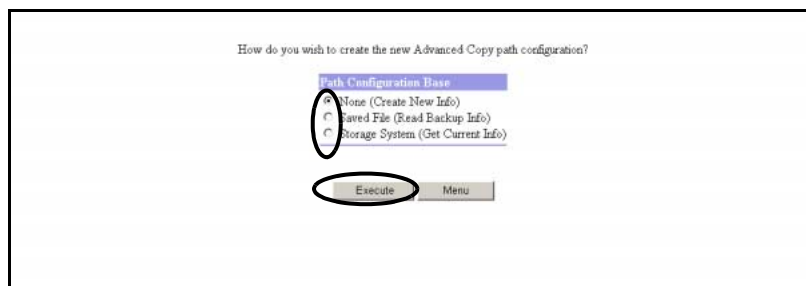
#### Caution



The screen only displays Local Device or Remote Device, which the device information is registered to Advanced Copy path configuration. When creating the Advanced Copy path, register the device information by using [Add New Storage System] or [Upload Adaptor Information] first.

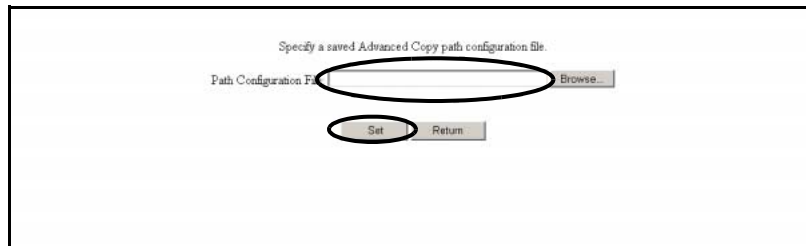
#### Procedure

- 1 Click [Create Advanced Copy Information] under the Remote Advanced Copy Configuration in the [Settings] menu.  
→ The [Create Advanced Copy Information (Initial)] screen appears.
- 2 Select the Path Configuration Base from the following, and click the [Execute] button.



- None (Create New Info)  
→ The [Create Advanced Copy Information (Editing Operations)] screen appears.  
Move on to [Step 4](#).
- Saved File (Read Backup Info)  
→ The [Create Advanced Copy Information (Read Path Configuration File)] screen appears. Move on to [Step 3](#).
- Storage System (Get Current Info)  
→ The [Create Advanced Copy Information (Editing Operations)] screen appears.  
Move on to [Step 4](#).

- 3** When selecting the [Saved File (Read Backup Info)], specify the Advanced Copy path configuration file to read and click the [Set] button.

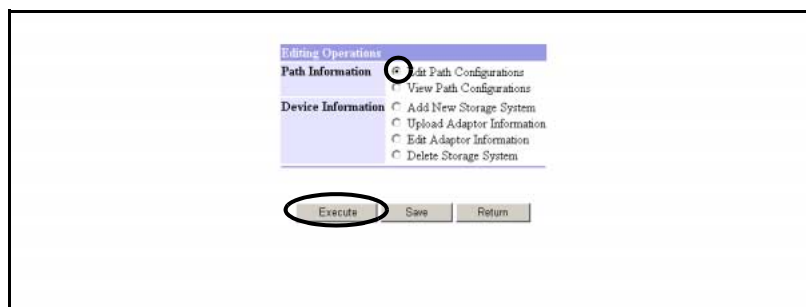


→ The [Create Advanced Copy Information (Editing Operations)] screen appears.

**Caution**

- Only the Advanced Copy path configuration file created and saved by this function can be specified here.
- When the [Set] button is clicked without selecting a file to read, an error screen appears.

- 4** Select the [Edit Path Configurations] and click the [Execute] button.



→ The [Create Advanced Copy Information (Select Local Device)] screen appears.

**Caution**

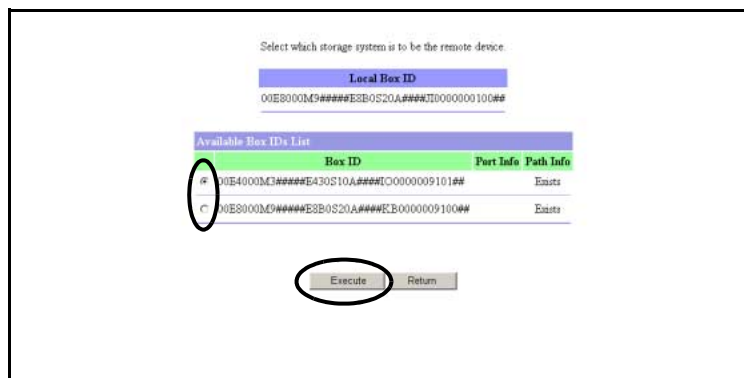
- When there are less than two registered devices, Advanced Copy path configuration cannot be created.
- When the [Return] button on the [Create Advanced Copy Information (Editing Operations)] screen is clicked, a message that the information of the path being created will be disabled appears.  
It is recommended to click the [Cancel] button to save the path configuration and then return to the [Create Advanced Copy Information (Initial)] screen.

- 5 Select the Storage System to create the path, and click the [Execute] button.



→ The [Create Advanced Copy Information (Select Remote Device)] screen appears.

- 6 Set the Remote Device and click the [Execute] button.



→ The [Create Advanced Copy Information (Matrix Setting Between Local/Remote Devices)] screen appears.

### Caution

When either the Local or Remote Device has no defined adaptor, a message to check the Local/Remote Device and to re-set it if necessary appears.

Click the [Return] button, and reselect the Local or Remote Device. Click the [Box ID] link to check the device information.



- 7** Select the points to set the Advanced Copy path, and click the [Set] button.
- When the path is FC-RA only

Setup the path connection configuration for Advanced Copy between the local and remote devices.

Local Box ID		Remote Box ID	
00E8000M9####EBB0S20A####J00000000100##		00E4000M3####E430S10A####IC0000009101##	

		REMOTE DEVICE				
		CM#0	CM#1	CM#2	CM#3	
LOCAL DEVICE	CM#0	CA#0 (FCRA)	#0 <input checked="" type="checkbox"/>	#1 <input checked="" type="checkbox"/>	#2 <input checked="" type="checkbox"/>	#3 <input checked="" type="checkbox"/>
		CA#1 (FCRA)	#0 <input checked="" type="checkbox"/>	#1 <input checked="" type="checkbox"/>	#2 <input checked="" type="checkbox"/>	#3 <input checked="" type="checkbox"/>
		CA#2 (FCRA)	#0 <input checked="" type="checkbox"/>	#1 <input checked="" type="checkbox"/>	#2 <input checked="" type="checkbox"/>	#3 <input checked="" type="checkbox"/>
		CA#3 (FCRA)	#0 <input checked="" type="checkbox"/>	#1 <input checked="" type="checkbox"/>	#2 <input checked="" type="checkbox"/>	#3 <input checked="" type="checkbox"/>
	CM#1	CA#0 (FCRA)	#0 <input type="checkbox"/>	#1 <input type="checkbox"/>	#2 <input type="checkbox"/>	#3 <input type="checkbox"/>
		CA#1 (FCRA)	#0 <input type="checkbox"/>	#1 <input type="checkbox"/>	#2 <input type="checkbox"/>	#3 <input type="checkbox"/>
		CA#2 (FCRA)	#0 <input type="checkbox"/>	#1 <input type="checkbox"/>	#2 <input type="checkbox"/>	#3 <input type="checkbox"/>
		CA#3 (FCRA)	#0 <input type="checkbox"/>	#1 <input type="checkbox"/>	#2 <input type="checkbox"/>	#3 <input type="checkbox"/>
	CM#2	CA#0 (FCRA)	#0 <input type="checkbox"/>	#1 <input type="checkbox"/>	#2 <input type="checkbox"/>	#3 <input type="checkbox"/>
		CA#1 (FCRA)	#0 <input type="checkbox"/>	#1 <input type="checkbox"/>	#2 <input type="checkbox"/>	#3 <input type="checkbox"/>
		CA#2 (FCRA)	#0 <input type="checkbox"/>	#1 <input type="checkbox"/>	#2 <input type="checkbox"/>	#3 <input type="checkbox"/>
		CA#3 (FCRA)	#0 <input type="checkbox"/>	#1 <input type="checkbox"/>	#2 <input type="checkbox"/>	#3 <input type="checkbox"/>
CM#3	CA#0 (FCRA)	#0 <input type="checkbox"/>	#1 <input type="checkbox"/>	#2 <input type="checkbox"/>	#3 <input type="checkbox"/>	
	CA#1 (FCRA)	#0 <input type="checkbox"/>	#1 <input type="checkbox"/>	#2 <input type="checkbox"/>	#3 <input type="checkbox"/>	
	CA#2 (FCRA)	#0 <input type="checkbox"/>	#1 <input type="checkbox"/>	#2 <input type="checkbox"/>	#3 <input type="checkbox"/>	
	CA#3 (FCRA)	#0 <input type="checkbox"/>	#1 <input type="checkbox"/>	#2 <input type="checkbox"/>	#3 <input type="checkbox"/>	

- When the path is iSCSI-RA only

Setup the path connection configuration for Advanced Copy between the local and remote devices.

Local Box ID		Remote Box ID	
00E8000M7####EB0S20A####JT0000000100##		00E8000M7####E390S20A####JT0000009101##	

		REMOTE DEVICE				
		CM#0		CM#1		
LOCAL DEVICE	CM#0	CA#0 (iSCSI-RA)	CA#1 (iSCSI-RA)	CA#2 (iSCSI-RA)	CA#3 (iSCSI-RA)	
		#0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		#1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		#2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CM#1	CA#0 (iSCSI-RA)	CA#1 (iSCSI-RA)	CA#2 (iSCSI-RA)	CA#3 (iSCSI-RA)	
		#0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		#1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		#2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CM#2	CA#0 (iSCSI-RA)	CA#1 (iSCSI-RA)	CA#2 (iSCSI-RA)	CA#3 (iSCSI-RA)	
		#0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		#1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		#2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CM#3	CA#0 (iSCSI-RA)	CA#1 (iSCSI-RA)	CA#2 (iSCSI-RA)	CA#3 (iSCSI-RA)	
		#0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		#1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		#2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Set Return

→ Updates input information, and the [Create Advanced Copy Information (Matrix Setting Between Local/Remote Devices)] screen appears again.

**Caution**

- Maximum number of paths to one Remote Device is 8. When the number of paths exceeds 8, an error screen appears.
- For FC-RA, the maximum number of paths that can be set for one port is 32 (when the Remote Device is the ETERNUS3000, 4 paths can be set). When the number of paths exceeds 32 (4), an error screen appears.
- For iSCSI-RA, the maximum number of paths that can be set for one port is 16. When the number of paths exceeds 16, an error screen appears.



Note

- For the ETERNUS DX410/DX440, ETERNUS DX8100/DX8400/DX8700, ETERNUS4000, and ETERNUS8000, only 1CM's worth of adaptor configuration for the Remote Device is displayed on the screen. To display the adaptor configuration of a different CM, click the corresponding [CM#x] button.
- For the ETERNUS6000, only 1RT's worth of adaptor configuration for the Remote Device is displayed on the screen. To display the adaptor configuration of a different RT, click the corresponding [RT#xx] button.
- When applying the Advanced Copy path configuration created by this function, use the [Set Advanced Copy Path] menu.

End of procedure

### 6.6.2.2 View Path Configurations

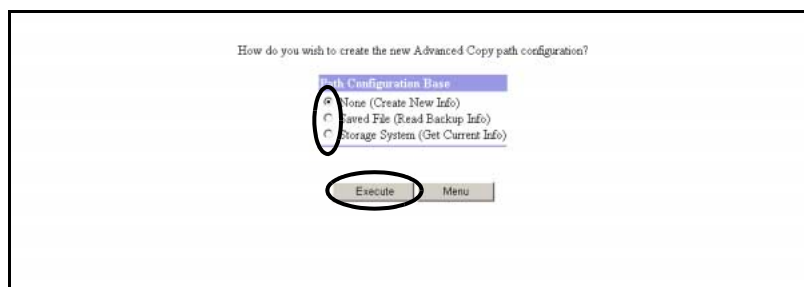
**Caution**



Advanced Copy path configuration cannot be changed on this screen. To change Advanced Copy path configuration, refer to ["6.6.2.1 Edit Path Configurations" \(page 548\)](#).

#### Procedure

- 1 Click [Create Advanced Copy Information] under the Remote Advanced Copy Configuration in the [Settings] menu.  
→ The [Create Advanced Copy Information (Initial)] screen appears.
- 2 Select a Path Configuration Base from the following, and click the [Execute] button.



- None (Create New Info)  
→ The [Create Advanced Copy Information (Editing Operations)] screen appears. Move on to [Step 4](#).
- Saved File (Read Backup Info)  
→ The [Create Advanced Copy Information (Read Path Configuration File)] screen appears. Move on to [Step 3](#).

- Storage System (Get Current Info)  
→ The [Create Advanced Copy Information (Editing Operations)] screen appears.  
Move on to [Step 4](#).

**3** When selecting the [Saved File (Read Backup Info)], specify the Advanced Copy path configuration file to read and click the [Set] button.



→ The [Create Advanced Copy Information (Editing Operations)] screen appears.

**Caution** 

- Only an Advanced Copy path configuration file created and saved by this function can be specified here.
- When the [Set] button is clicked without selecting a file to read, an error screen appears.

**4** Select the [View Path Configurations] and click the [Execute] button.



→ The [Create Advanced Copy Information (Select Path Check Device)] screen appears.

**Caution** 

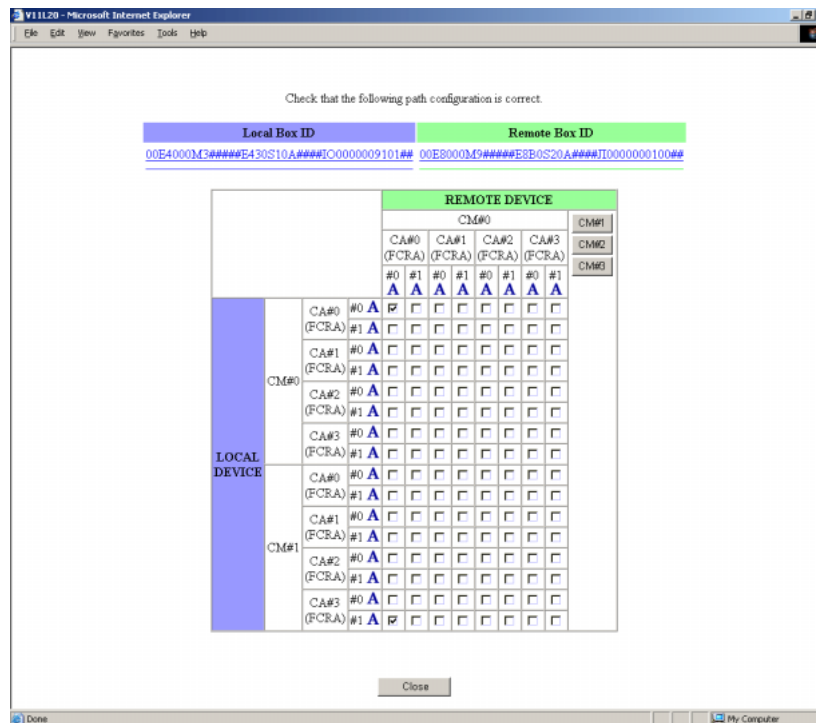
- When there are less than two registered devices, Advanced Copy path configuration cannot be checked.
- When the [Return] button on the [Create Advanced Copy Information (Editing Operations)] screen is clicked, a message that the information of the path being created will be disabled appears.  
It is recommended to click the [Cancel] button to save the path configuration and then return to the [Create Advanced Copy Information (Initial)] screen.



## 6 Check the path.

The path whose checkbox is checked has been set.

- When the path is FC-RA only.



- When the path is iSCSI-RA only.

Check that the following path configuration is correct.

Local Box ID		Remote Box ID	
00E8000M9####E8B0S20A####J70000000100##		00E8000M9####E8B0S20A####J700000009101##	

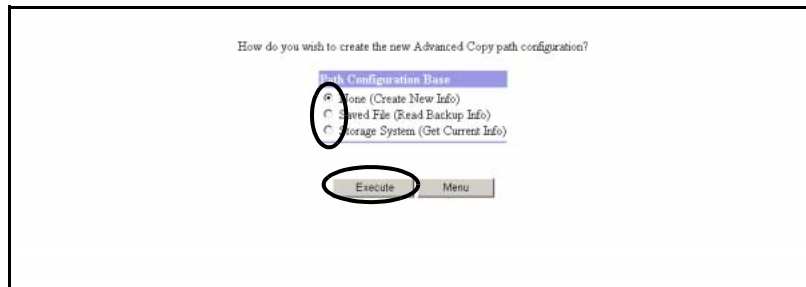
  

		REMOTE DEVICE			
		CM#0		CM#1	
LOCAL DEVICE		CA#0 (SCSI-RA)	CA#1 (SCSI-RA)	CA#0 (SCSI-RA)	CA#1 (SCSI-RA)
				#0	#1
CM#0	CA#0 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#1 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#2 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#3 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#0 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#1 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#2 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#3 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#0 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#1 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#2 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#3 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CM#1	CA#0 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#1 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#2 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#3 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#0 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#1 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#2 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#3 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#0 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#1 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#2 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#3 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CM#2	CA#0 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#1 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#2 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#3 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#0 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#1 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#2 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#3 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#0 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#1 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#2 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#3 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CM#3	CA#0 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#1 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#2 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#3 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#0 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#1 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#2 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#3 (SCSI-RA)	#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#0 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#1 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#2 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CA#3 (SCSI-RA)	#0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Close

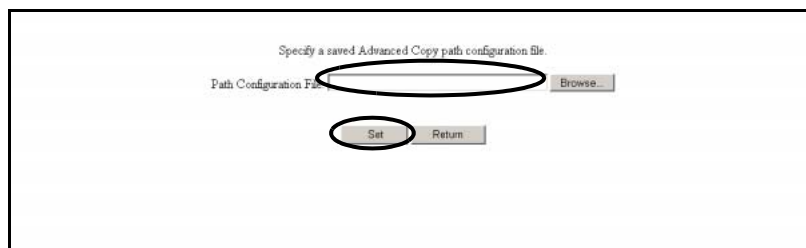


- 2** Select a Path Configuration Base from the following, and click the [Execute] button.



- None (Create New Info)  
→ The [Create Advanced Copy Information (Editing Operations)] screen appears. Move on to [Step 4](#).
- Saved File (Read Backup Info)  
→ The [Create Advanced Copy Information (Read Path Configuration File)] screen appears. Move on to [Step 3](#).
- Storage System (Get Current Info)  
→ The [Create Advanced Copy Information (Editing Operations)] screen appears. Move on to [Step 4](#).

- 3** When selecting the [Saved File (Read Backup Info)], specify the Advanced Copy path configuration file to read and click the [Set] button.



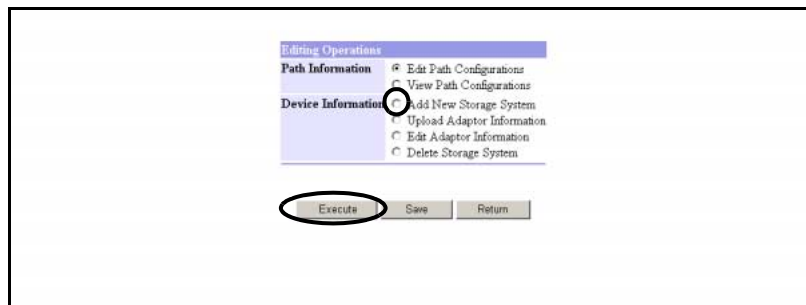
→ The [Create Advanced Copy Information (Editing Operations)] screen appears.

**Caution**



- Only Advanced Copy path configuration files created and saved by this function can be specified here.
- When the [Set] button is clicked without selecting a file to read, an error screen appears.

**4** Select the [Add New Storage System] and click the [Execute] button.



→ The [Create Advanced Copy Information (Input New Adaptor Information)] screen appears.

**Caution** 

When the [Return] button on the [Create Advanced Copy Information (Editing Operations)] screen is clicked, a message that the information of the path being created will be disabled appears. It is recommended to click the [Cancel] button to save the path configuration and then return to the [Create Advanced Copy Information (Initial)] screen.

**5** Register the new device, and click the [Execute] button.

Set the following items.

- Series
- Unique Number
- Vendor Specified (for ETERNUS3000 only)
- Box ID
- iSCSI Name

A screenshot of a web form titled 'Storage System Details' with the subtitle 'Enter the details of the new storage system.' The form has three columns: 'Series', 'Unique Number', and 'Vendor Specified'. Under 'Series', there are radio button options: 'ETERNUS DX410/DX440/DX8100/DX8400/DX8700' (selected and circled), 'ETERNUS4000/8000 MODEL400/600/800/1200/2200', 'ETERNUS4000/8000 MODEL300/500/700/900/1100/2100', 'ETERNUS6000', and 'GR740/840'. Below these are two more radio button options: 'ETERNUS3000' and 'ETERNUS3000' (with '0x' and a text box next to it). There are also text boxes for 'Box ID' and 'iSCSI Name'. At the bottom, there are 'Execute' and 'Return' buttons, with 'Execute' circled.

Refer to ["A.32.1 Create Advanced Copy Information \(Input New Device Information\) Screen" \(page 795\)](#) for screen details.

**Caution** 

- If the input information is inconsistent with the device information, the Advanced Copy path configuration cannot be set to the device using the [Set Advanced Copy Path] function. Input the device information correctly.
- When 17 devices have already been registered, a device cannot be added.
- A device that has already been registered cannot be registered again.  
If the registered device information is incorrect, delete it by using [Delete Storage System] and register again.
- When either the Box ID or the Unique Number that is already registered in the device are same, the device cannot be added.
- When a setting item is not set or contents of setting items are incorrect, an error screen appears.
- When an iSCSI name that has already been registered is specified again, an error screen appears.

→ The [Create Advanced Copy Information (Set Device)] screen appears.  
The displayed screen differs depending on the selected [Series].

- For ETERNUS3000



Register Adapter information on a new device.

**NEW Box ID**  
SAMPLEDEVICE#ETERNUS3000#XXXXXXXXXXXX

Adapter information of device (ETERNUS3000)

CMR	CAS	Port#	FCRA World Wide Name
CAS0		Port#0	invalid
		Port#1	220000E000A83000
CAS00		Port#2	230000E000A83000
		Port#3	invalid
		Port#4	250000E000A83000
CAS0		Port#5	invalid
CAS001		Port#6	invalid
		Port#7	invalid

Set Return

- [illegible]

- For ETERNUS DX410/DX440, ETERNUS DX8100/DX8400/DX8700, ETERNUS4000, and ETERNUS8000

Select the type of adaptor (if any) installed in each slot.

**NEW Box ID**  
 00E8000M9####E8B0S20A####TL0000000123##

**Adaptor Details (for ETERNUS4000/8000)**

CM#	CA#	RA Type
CM# 0	CA#0	iSCSI 2-Port <a href="#">Set Detail</a>
	CA#1	---
	CA#2	---
	CA#3	iSCSI 2-Port <a href="#">Set Detail</a>
CM# 1	CA#0	---
	CA#1	iSCSI 1-Port <a href="#">Set Detail</a>
	CA#2	---
	CA#3	---
CM# 2	CA#0	---
	CA#1	---
	CA#2	---
	CA#3	---
CM# 3	CA#0	---
	CA#1	---
	CA#2	---
	CA#3	---
CM# 4	CA#0	---
	CA#1	---
	CA#2	---
	CA#3	---
CM# 5	CA#0	---
	CA#1	---
	CA#2	---
	CA#3	---
CM# 6	CA#0	---
	CA#1	---
	CA#2	---
	CA#3	---
CM# 7	CA#0	---
	CA#1	---
	CA#2	---
	CA#3	---

Set Return

## 6 Register the adaptor information of a new Storage System.

Set the following items. Setting items for the device and operations after setting differ according to the selected [Series].

### ■ For ETERNUS3000

Select [FCRA World Wide Name] from the list box, and click the [Set] button.

#### Caution



Up to 2 ports can be defined with 1 CM. When 3 or more ports are defined, an error screen appears.

→ The [Create Advanced Copy Information (Set Device)] screen, which has been updated, appears again.

■ For ETERNUS6000

Select [RA Type] from the list box, specify the port mode (Initiator/Target) using the radio button, and click the [Set] button.

**Caution**



When the [FC 2-Port] is selected as the [RA Type], the [port#0] and [port#1] becomes available.

→ The [Create Advanced Copy Information (Set Device)] screen, which has been updated, appears again.

■ For ETERNUS DX410/DX440, ETERNUS DX8100/DX8400/DX8700, ETERNUS4000, and ETERNUS8000

(1) Select [RA Type] from the list box, and click the [Set] button.

(2) Click the [Set Detail] link and set detailed settings for each CA.

→ The [Create Advanced Copy Information (RA Setting)] screen appears.

The screen differs depending on the selected [RA Type].

- ---

[Set Detail] link is not displayed.

- FC 1-Port

Select the type of port for each port in the adaptor.

Adapter Details (for ETERNUS4000/8000)

CA	RA	CM#
<input checked="" type="radio"/> CA	<input type="radio"/> I.A.	CM#0 CA#1 Port#0

Set Return

- FC 2-Port

Select the type of port for each port in the adaptor.

Adapter Details (for ETERNUS4000/8000)

CA	RA	CM#
<input checked="" type="radio"/> CA	<input type="radio"/> I.A.	CM#0 CA#2 Port#0
<input checked="" type="radio"/> CA	<input type="radio"/> I.A.	CM#0 CA#2 Port#1

Set Return

- FC 4-Port

Select the type of port for each port in the adaptor.

Adapter Details (for ETERNUS4000/8000)

CA	RA	CM#
<input checked="" type="radio"/> CA	<input type="radio"/> I.A.	CM#0 CA#3 Port#0
<input checked="" type="radio"/> CA	<input type="radio"/> I.A.	CM#0 CA#3 Port#1
<input checked="" type="radio"/> CA	<input type="radio"/> I.A.	CM#0 CA#3 Port#2
<input checked="" type="radio"/> CA	<input type="radio"/> I.A.	CM#0 CA#3 Port#3

Set Return

- iSCSI 1-Port

Select the type of port for each port in the adaptor.

Adaptor Details (for ETERNUS4000/8000)	
CM# - CA# - Port#	CM#0 - CA#0 - Port#0
IP Address	[192] [168] [0] [20]
iSCSI Name	[iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000000100-4000]
Alias Name	
User name	
Password	
RA Mode	<input type="radio"/> CA <input checked="" type="radio"/> RA
iSCSI Name Initialize	[CM#0 - CA#0 - Port#0] [Default] <small>(iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000000100)</small>

[Set] [Return]

- iSCSI 2-Port

Select the type of port for each port in the adaptor.

Adaptor Details (for ETERNUS4000/8000)	
CM# - CA# - Port#	CM#1 - CA#0 - Port#0
IP Address	[192] [168] [0] [20]
iSCSI Name	[iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000000100-5000]
Alias Name	
User name	
Password	
RA Mode	<input type="radio"/> CA <input checked="" type="radio"/> RA

Adaptor Details (for ETERNUS4000/8000)	
CM# - CA# - Port#	CM#1 - CA#0 - Port#1
IP Address	[192] [168] [0] [21]
iSCSI Name	[iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000000100-5001]
Alias Name	
User name	
Password	
RA Mode	<input type="radio"/> CA <input checked="" type="radio"/> RA
iSCSI Name Initialize	[CM#1 - CA#0 - Port#1] [Default] <small>(iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000000100)</small>

[Set] [Return]

(3) After setting the items, click the [Set] button.

→ The [Create Advanced Copy Information (RA Setting)] screen, which has been updated, appears again.

**Caution** 

- When a setting item is not set or the content of setting values is incorrect, an error screen appears.
- When changing the Advanced Copy information (Adaptor Information), select [Edit Adaptor Information] radio button on the [Create Advanced Copy Information (Editing Operations)] screen.

End of procedure

### 6.6.2.4 Upload Adaptor Information

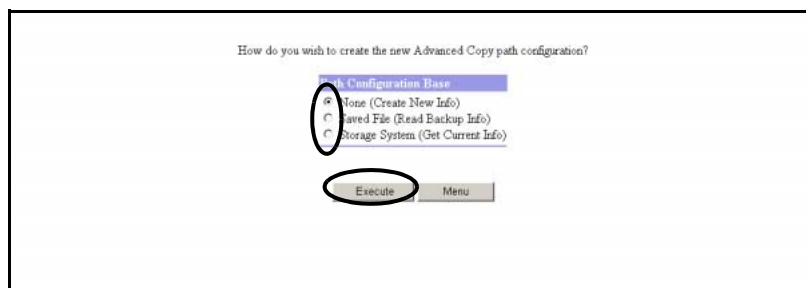


**Caution**

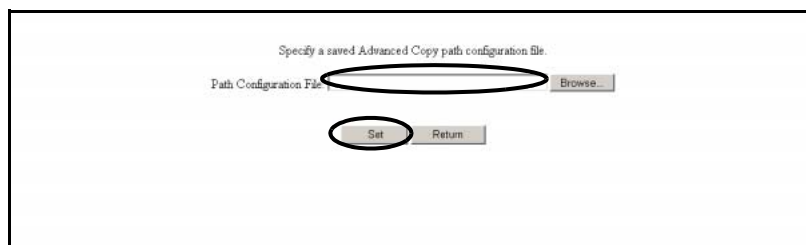
When adding the ETERNUS3000 device information, the [Upload Adaptor Information] cannot be used.

#### Procedure

- 1 Click [Create Advanced Copy Information] under the Remote Advanced Copy Configuration in the [Settings] menu.  
→ The [Create Advanced Copy Information (Initial)] screen appears.
- 2 Select Path Configuration Base from the following, and click the [Execute] button.



- None (Create New Info)  
→ The [Create Advanced Copy Information (Editing Operations)] screen appears. Move on to [Step 4](#).
  - Saved File (Read Backup Info)  
→ The [Create Advanced Copy Information (Read Path Configuration File)] screen appears. Move on to [Step 3](#).
  - Storage System (Get Current Info)  
→ The [Create Advanced Copy Information (Editing Operations)] screen appears. Move on to [Step 4](#).
- 3 When selecting the [Saved File (Read Backup Info)], specify the Advanced Copy path configuration file to read and click the [Set] button.

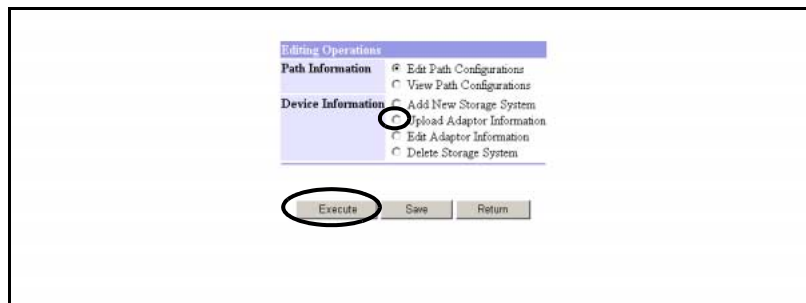


→ The [Create Advanced Copy Information (Editing Operations)] screen appears.

**Caution** 

- Only an Advanced Copy path configuration file created and saved by this function can be specified here.
- When the [Set] button is clicked without selecting a file to read, an error screen appears.

**4** Select the [Upload Adaptor Information] and click the [Execute] button.

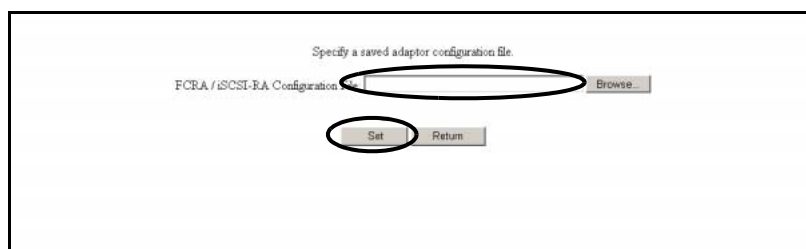


→ The [Create Advanced Copy Information (Input Adaptor Information File)] screen appears.

**Caution** 

When the [Return] button on the [Create Advanced Copy Information (Editing Operations)] screen is clicked, a message that the information of the path being created will be disabled appears. It is recommended to click the [Cancel] button to save the path configuration and then return to the [Create Advanced Copy Information (Initial)] screen.

**5** Click the [Browse] button, select the adaptor configuration file to read, and click the [Set] button.



→ The [Create Advanced Copy Information (Check Add Device)] screen appears.

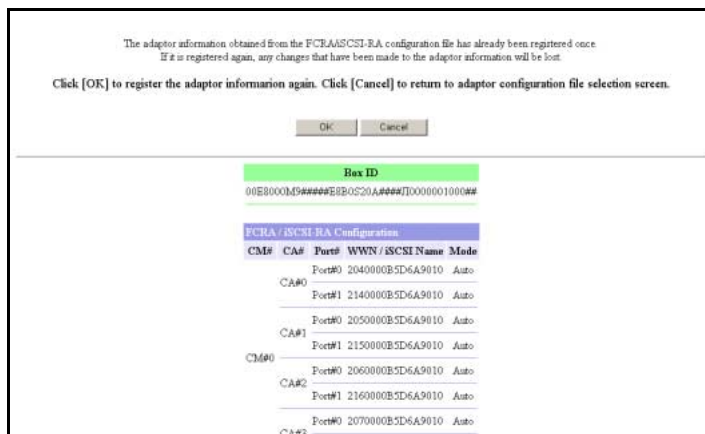
**Caution** 

- Only adaptor configuration file saved by the following functions can be specified here:
  - ETERNUS DX400/DX8000 series: the [Export Advanced Copy Information] function
  - ETERNUS4000, ETERNUS8000: the [Export Advanced Copy Information] function
  - ETERNUS6000: the [Export FCRA Information] function
- When jumping from the [Storage System (Get Current Info)] screen to this screen in Step 2, an error screen appears if the Advanced Copy configuration file of the Local Device is selected.
- When 17 devices have already been registered, no more devices can be added.
- If an already registered device is registered again using a Upload Adaptor Information, adaptor configuration will be overwritten. When paths have already been created, all changed RA port path configuration is deleted if the mode (Initiator/Target) (\*1) is reversed. Similarly, if the number of RA ports is reduced, path configuration for the deleted ports is also deleted. For example, if a 4-port configuration is changed to a 2-port configuration, the port#0 and port#1 path configuration is retained, while the port#2 and port#3 path configuration is deleted.
 

\*1: ETERNUS6000 only.
- If the [Set] button is clicked when no file has been selected, an error screen appears.

 **Note**

When the adaptor information read from the file has already been registered, an update is performed instead of a new registration. When the update process is performed, clicking the [Set] button displays the [Create Advanced Copy Information (Check Updating Device)] screen.



The adaptor information obtained from the FCRA/ISCSI-RA configuration file has already been registered once.  
 If it is registered again, any changes that have been made to the adaptor information will be lost.

Click [OK] to register the adaptor information again. Click [Cancel] to return to adaptor configuration file selection screen.

OK Cancel

**Box ID**  
 00E80000S####E80C20A####D000001000##

**FCRA / ISCSI RA Configuration**

CM#	CA#	Port#	WWN / ISCSI Name	Mode
CA#0		Port#0	2040000B5D6A9010	Auto
		Port#1	2140000B5D6A9010	Auto
CA#1		Port#0	2050000B5D6A9010	Auto
		Port#1	2150000B5D6A9010	Auto
CA#2		Port#0	2060000B5D6A9010	Auto
		Port#1	2160000B5D6A9010	Auto
CA#3		Port#0	2070000B5D6A9010	Auto
		Port#1	2170000B5D6A9010	Auto

- 6** Click the [OK] button, and register the device information read from the file.
- When the path is FC-RA only

The adaptor information obtained from the FCRA/iSCSI-RA configuration file will be registered as a new storage system.

Please confirm that you wish to perform this operation.

OK Cancel

**Box ID**  
 00E8000M9####E8B0S20A####J0000001000##

**FCRA / iSCSI-RA Configuration**

CM#	CA#	Port#	WWN / iSCSI Name	Mode
CA#0		Port#0	2040000B5D6A9010	Auto
		Port#1	2140000B5D6A9010	Auto
CA#1		Port#0	2050000B5D6A9010	Auto
		Port#1	2150000B5D6A9010	Auto
CA#2		Port#0	2060000B5D6A9010	Auto
		Port#1	2160000B5D6A9010	Auto
CA#3		Port#0	2070000B5D6A9010	Auto
		Port#1	2170000B5D6A9010	Auto

- When the path is iSCSI-RA only

The adaptor information obtained from the FCRA/iSCSI-RA configuration file will be registered as a new storage system.

Please confirm that you wish to perform this operation.

OK Cancel

**Box ID**  
 00E8000M9####E8B0S20A####J0000001000##

**FCRA / iSCSI-RA Configuration**

CM#	CA#	Port#	WWN / iSCSI Name	Mode
CA#0		Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m@000000	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m@000000	Auto
CA#1		Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m@000000	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m@000000	Auto
CA#2		Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m@000000	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m@000000	Auto
CA#3		Port#0	iqn.2000-09.com.fujitsu.storage-system.e8000m@000000	Auto
		Port#1	iqn.2000-09.com.fujitsu.storage-system.e8000m@000000	Auto

→ The [Create Advanced Copy Information (Input Adaptor Information File)] screen, which has been updated, appears again.

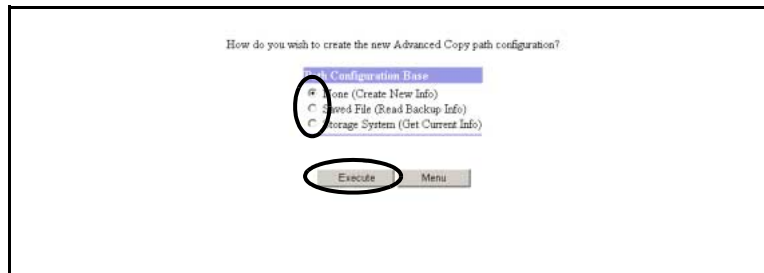
End of procedure

### 6.6.2.5 Edit Adaptor Information

#### Procedure

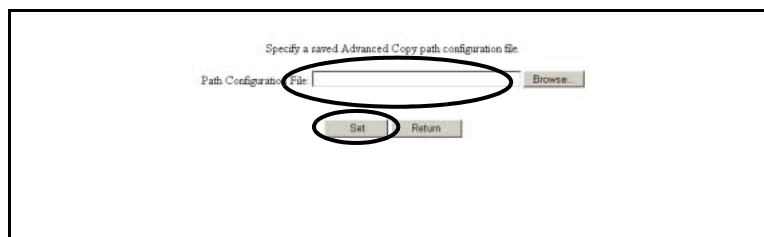
- 1 Click [Create Advanced Copy Information] under the Remote Advanced Copy Configuration in the [Settings] menu.  
 → The [Create Advanced Copy Information (Initial)] screen appears.

- 2** Select a Path Configuration Base from the following, and click the [Execute] button.



- None (Create New Info)  
→ The [Create Advanced Copy Information (Editing Operations)] screen appears. Move on to [Step 4](#).
- Saved File (Read Backup Info)  
→ The [Create Advanced Copy Information (Read Path Configuration File)] screen appears. Move on to [Step 3](#).
- Storage System (Get Current Info)  
→ The [Create Advanced Copy Information (Editing Operations)] screen appears. Move on to [Step 4](#).

- 3** When selecting the [Saved File (Read Backup Info)], specify the Advanced Copy path configuration file to read and click the [Set] button.



→ The [Create Advanced Copy Information (Editing Operations)] screen appears.

**Caution**

- Only an Advanced Copy path configuration file created and saved by this function can be specified here.
- When the [Set] button is clicked without selecting a file to read, an error screen appears.

- 4** Select the [Edit Adaptor Information] and click the [Execute] button.

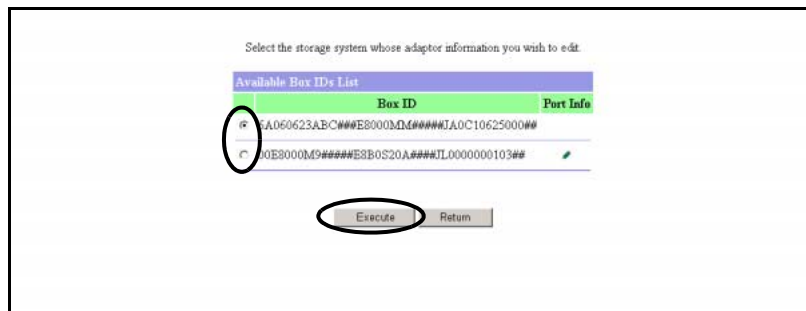


→ The [Create Advanced Copy Information (Select Editing Device)] screen appears.

**Caution**

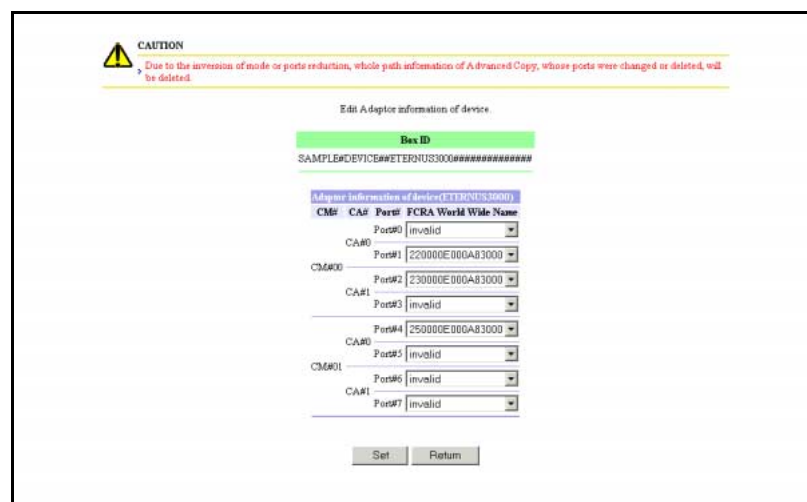
- When jumping from [Storage System (Get Current Info)] in Step 2 to this screen, the Local Device cannot be deleted or edited using the [Delete Storage System] or [Edit Adaptor Information] function.
- When there is no registered device, an error screen appears.
- When the [Return] button on the [Create Advanced Copy Information (Editing Operations)] screen is clicked, a message that the information of the path being created will be disabled appears.  
It is recommended to click the [Cancel] button to save the path configuration and then return to the [Create Advanced Copy Information (Initial)] screen.


**5** Select the Storage System to edit the Adaptor Information, and click the [Execute] button.



→ The [Create Advanced Copy Information (Edit Device)] screen appears.  
 The displayed screen differs depending on the selected device type.

- For ETERNUS3000



- 

**CAUTION**

Due to the invasion of mode or ports reduction, whole path information of Advanced Copy, whose ports were changed or deleted, will be deleted.

Edit A adaptor information of device

**Box ID**  
 00E000000000E030301A0000F10000000100000000

Adapter information of device(ETHERNETUS66000)

RT#	CA#	RA Type	Mode				
			port0	1	2	3	
RT#00	CA#0	ZC2000E000CB0001 invalid	I	G	G	G	G
	CA#1	ZC2100E000CB0001 FC 4Port	I	G	G	G	G
	CA#2	ZC2400E000CB0001 invalid	I	G	G	G	G
	CA#3	ZC2500E000CB0001 FC 2Port	I	G	G	G	G
RT#10	CA#0	ZC3000E000CB0001 invalid	I	G	G	G	G
	CA#1	ZC3100E000CB0001 invalid	I	G	G	G	G
	CA#2	ZC3400E000CB0001 invalid	I	G	G	G	G
	CA#3	ZC3500E000CB0001 invalid	I	G	G	G	G
RT#01	CA#0	ZC2000E000CB0001 invalid	I	G	G	G	G
	CA#1	ZC2900E000CB0001 invalid	I	G	G	G	G
	CA#2	ZC2C00E000CB0001 FC 2Port	I	G	G	G	G
	CA#3	ZC2D00E000CB0001 FC 2Port	I	G	G	G	G
RT#11	CA#0	ZC3800E000CB0001 invalid	I	G	G	G	G
	CA#1	ZC3900E000CB0001 invalid	I	G	G	G	G
	CA#2	ZC3C00E000CB0001 invalid	I	G	G	G	G
	CA#3	ZC3D00E000CB0001 invalid	I	G	G	G	G

Set
Return

- For ETERNUS DX410/DX440, ETERNUS DX8100/DX8400/DX8700, ETERNUS4000, and ETERNUS8000

**CAUTION**  
 > Changing port modes and/or removing adaptors will also result in the deletion of all associated paths.

Select the storage system whose adaptor information you wish to edit.

**Box ID**  
 00E8000M9####E8B0S20A####JL0000000103##

**Adaptor Details (for ETERNUS4000/8000)**

CM#	CA#	RA Type
CM# 0	CA#0	iSCSI 2-Port <a href="#">Set Detail</a>
	CA#1	---
	CA#2	---
	CA#3	---
CM# 1	CA#0	iSCSI 2-Port <a href="#">Set Detail</a>
	CA#1	---
	CA#2	---
	CA#3	---
CM# 2	CA#0	---
	CA#1	---
	CA#2	---
	CA#3	---
CM# 3	CA#0	---
	CA#1	---
	CA#2	---
	CA#3	---
CM# 4	CA#0	---
	CA#1	---
	CA#2	---
	CA#3	---
CM# 5	CA#0	---
	CA#1	---
	CA#2	---
	CA#3	---
CM# 6	CA#0	---
	CA#1	---
	CA#2	---
	CA#3	---
CM# 7	CA#0	---
	CA#1	---
	CA#2	---
	CA#3	---

## 6 Edit the adaptor information of the Storage System.

Set the following items. Setting items for the device and operations after setting differ according to the selected [Box ID].

### Caution

All changed RA port path configurations are deleted if the mode (Initiator/Target)\*1 is reversed. Similarly, if the number of RA ports is reduced, path configurations for the deleted ports are also deleted. For example, if a 4-port configuration is changed to a 2-port configuration, the port#0 and port#1 path configuration is retained, while the port#2 and port#3 path configuration is deleted.

\*1: ETERNUS6000 only.

■ For ETERNUS3000

Select [FCRA World Wide Name] from the list box, and click the [Set] button.



**Caution**

Up to 2 ports can be defined with 1 CM. When 3 or more ports are defined, an error screen appears.

→ The [Create Advanced Copy Information (Edit Device)] screen, which has been updated, appears again.

■ For ETERNUS6000

Select [RA Type] from the list box, specify the port mode (Initiator/Target) using the radio button, and click the [Set] button.



**Caution**

When the [FC 2-Port] is selected as the [RA Type], [port#0] and [port#1] become available.

→ The [Create Advanced Copy Information (Edit Device)] screen, which has been updated, appears again.

■ For ETERNUS DX410/DX440, ETERNUS DX8100/DX8400/DX8700, ETERNUS4000, and ETERNUS8000

(1) Select [RA Type] from the list box, and click the [Set] button.

(2) Click the [Set Detail] link and set detailed settings for each CA.

→ The [Create Advanced Copy Information (Edit RA)] screen appears.

The screen differs depending on the selected [RA Type].

- ---

[Set Detail] link is not displayed.

- FC 1-Port

Select the storage system whose adaptor information you wish to edit.

Adapter Details (for ETERNUS4000/8000)				
CA	RA	CM#		
# CA	C RA	CM#0	CA#1	Port#0

Set Return

- FC 2-Port

Select the storage system whose adaptor information you wish to edit.

Adapter Details (for ETERNUS4000/8000)				
CA	RA	CM#		
# CA	C RA	CM#0	CA#2	Port#0
# CA	C RA	CM#0	CA#2	Port#1

Set Return

- FC 4-Port

Select the storage system whose adaptor information you wish to edit.

Adaptor Details (for ETERNUS4000/8000)			
CA	RA	CM#	
<input type="radio"/> CA	<input type="radio"/> RA	CM#0	CA#3 Port#0
<input type="radio"/> CA	<input type="radio"/> RA	CM#0	CA#3 Port#1
<input type="radio"/> CA	<input type="radio"/> RA	CM#0	CA#3 Port#2
<input type="radio"/> CA	<input type="radio"/> RA	CM#0	CA#3 Port#3

Set Return

- iSCSI 1-Port

Select the storage system whose adaptor information you wish to edit.

Adaptor Details (for ETERNUS4000/8000)	
CM# - CA# - Port#	CM#1 - CA#1 - Port#0
IP Address	192 168 0 20
iSCSI Name	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000000101-5100
Alias Name	
User name	
Password	
RA Mode	<input type="radio"/> CA <input checked="" type="radio"/> RA
iSCSI Name Initialize	CM#1 - CA#1 - Port#0 Default (iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000000101)

Set Return

- iSCSI 2-Port

Select the storage system whose adaptor information you wish to edit.

Adaptor Details (for ETERNUS4000/8000)	
CM# - CA# - Port#	CM#1 - CA#0 - Port#0
IP Address	192 168 0 20
iSCSI Name	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000000101-5000
Alias Name	
User name	
Password	
RA Mode	<input type="radio"/> CA <input checked="" type="radio"/> RA
CM# - CA# - Port#	CM#1 - CA#0 - Port#1
IP Address	192 168 0 21
iSCSI Name	iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000000101-5001
Alias Name	
User name	
Password	
RA Mode	<input type="radio"/> CA <input checked="" type="radio"/> RA
iSCSI Name Initialize	CM#1 - CA#0 - Port#0 Default (iqn.2000-09.com.fujitsu.storage-system.e8000m9.0000000101)

(3)After setting the items, click the [Set] button.

→ The [Create Advanced Copy Information (Edit RA)] screen, which has been updated, appears again.

**Caution**

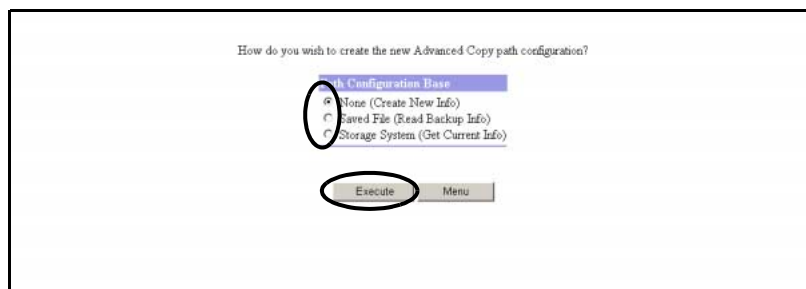
When a setting item is not set or the content of setting values is incorrect, an error screen appears.

End of procedure

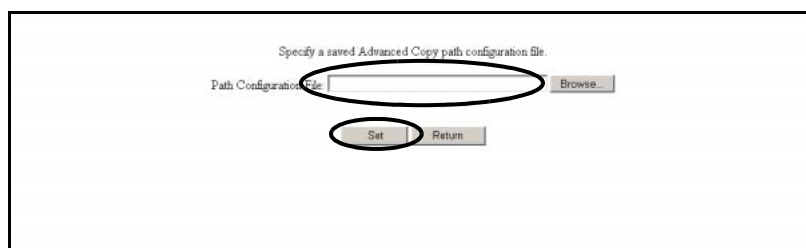
### 6.6.2.6 Delete Storage System

#### Procedure

- 1 Click [Create Advanced Copy Information] under the Remote Advanced Copy Configuration in the [Settings] menu.  
→ The [Create Advanced Copy Information (Initial)] screen appears.
- 2 Select Path Configuration Base from the following, and click the [Execute] button.



- None (Create New Info)  
→ The [Create Advanced Copy Information (Editing Operations)] screen appears. Move on to [Step 4](#).
  - Saved File (Read Backup Info)  
→ The [Create Advanced Copy Information (Read Path Configuration File)] screen appears. Move on to [Step 3](#).
  - Storage System (Get Current Info)  
→ The [Create Advanced Copy Information (Editing Operations)] screen appears. Move on to [Step 4](#).
- 3 When selecting the [Saved File (Read Backup Info)], specify the Advanced Copy path configuration file to read and click the [Set] button.

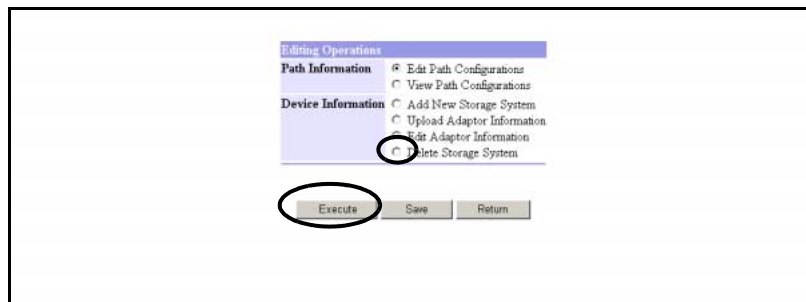


→ The [Create Advanced Copy Information (Editing Operations)] screen appears.

#### Caution

- Only an Advanced Copy path configuration file created and saved by this function can be specified here.
- When the [Set] button is clicked without selecting a file to read, an error screen appears.

**4** Select the [Delete Storage System] and click the [Execute] button.

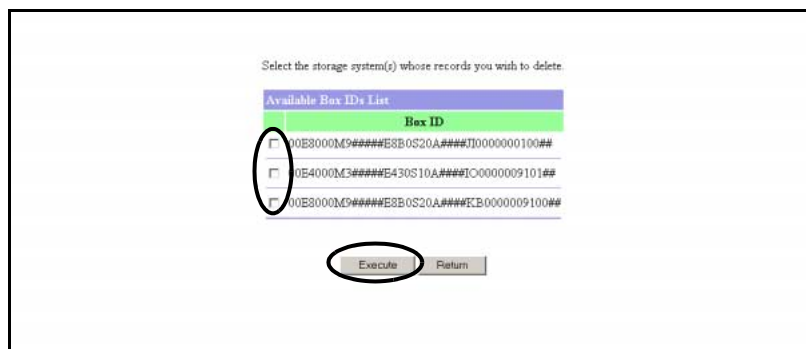


→ The [Create Advanced Copy Information (Select Device to Delete)] screen appears.

**Caution**

- When jumping from [Storage System (Get Current Info)] in Step 2 to this screen, the Local Device cannot be deleted or edited using the [Delete Storage System] or [Edit Adaptor Information] function.
- When the device is deleted, the Advanced Copy path connected to the device is automatically deleted.
- When there is no registered device, an error screen appears.
- When the [Return] button on the [Create Advanced Copy Information (Editing Operations)] screen is clicked, a message that the information of the path being created will be disabled appears.  
It is recommended to click the [Cancel] button to save the path configuration and then return to the [Create Advanced Copy Information (Initial)] screen.

**5** Select the device to delete (multiple selection can be made), and click the [Execute] button.



→ The [Create Advanced Copy Information (Check Deletion)] screen appears.

**Caution**

- When the [Execute] button is clicked without selecting the device to be deleted, an error screen appears.

## 6 Click the [OK] button.



→ Deletes the selected device and returns to the [Create Advanced Copy Information (Editing Operations)] screen.

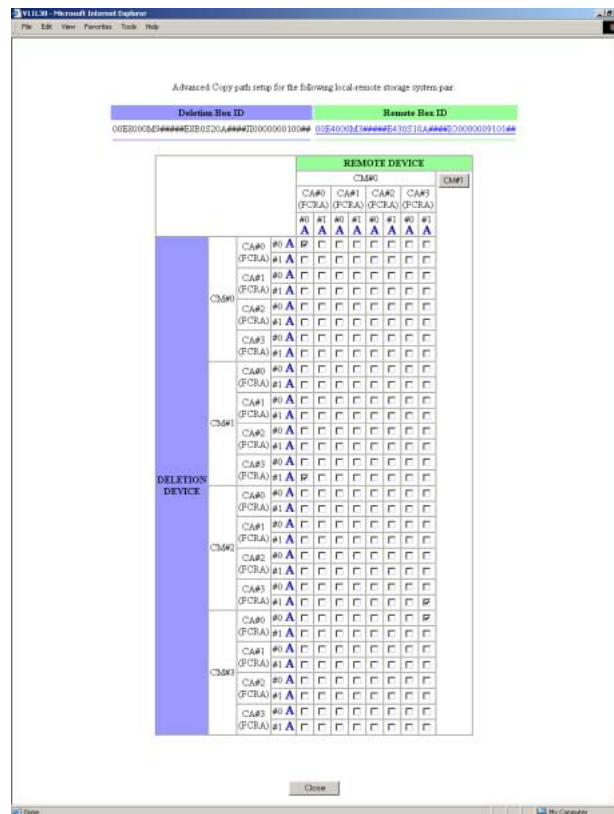


Note

- When clicking the [Storage System Deletion List] link, the [Create Advanced Copy Information (Deletion Device Details)] screen appears, and the information of the device to be deleted and its connected Advanced Copy path configuration can be checked.



- When a device configuring the path between a device to be deleted exists, the [Remote Box ID] link on the [Create Advanced Copy Information (Deletion Device Details)] screen appears. When the [Remote Box ID] link is clicked, the [Create Advanced Copy Information (Matrix between Deleted/Remote Devices)] screen appears in another window and the Advanced Copy path can be checked.



By clicking the [Remote Box ID] link on the displayed screen, the [Create Advanced Copy Information (Remote Device Details)] screen appears to another window, and the adaptor information of the Remote Device can be checked.

End of procedure

### 6.6.2.7 Save Advanced Copy Path

The [Create Advanced Copy Information (Path Deletion Check)] screen appears when the [Return] button is clicked on the [Create Advanced Copy Information (Editing Operations)] screen.

To save the Advanced Copy path configuration, return to the [Create Advanced Copy Information (Editing Operations)] screen by clicking the [Cancel] button, and save it. The file name is "CopyTable.dat".

After saving the Advanced Copy path configuration, set the path configuration using the [Set Advanced Copy Path] menu and then check it using the [Check Advanced Copy Path] menu.

**Caution**



The Advanced Copy Path configuration file must be saved within one minute from the time the [Save] button is clicked. If the download dialog box is left open for over a minute, the download operation may be terminated with an unsuccessfully downloaded file.

If the downloaded file cannot be opened, the download has failed, try the download again.

### 6.6.3 Set Advanced Copy Path

Using this function, the Path Configuration file created by the [Create Advanced Copy Information] function is used to setup the local device. When the Path Configuration file does not include the local device path, the local device path information is initialized. If the path configuration is changed using the [Set Advanced Copy Path] function, the change takes effect as soon as the setting is made to the device.

**Caution**



- When the local device information (Local Box ID) is mistaken, a "target device is not present" error is displayed. The Local Box ID cannot be edited using the [Create Advanced Copy Information] function. If the Local Box ID is mistaken, delete the local device using the [Create Advanced Copy Information] "Delete Storage System" function, and re-create the Path Configuration file.
- When the local device information (Local Adaptor information) is mistaken, an error to this effect is displayed. Local adaptor information can be edited using the [Create Advanced Copy Information] function. If the Local Adaptor information is mistaken, re-edit the Path Configuration file using the [Create Advanced Copy Information] "Edit Adaptor Information" function.
- When the Box ID of a device whose Path Configuration file has already been set is changed, Remote Advanced Copy (REC) can no longer be executed. Remake the Path Configuration file using the new Box ID, and update the path information setting on all affected devices.
- If a Remote Advanced Copy session is running, changing the paths used by the copy operation may result in Remote Advanced Copy errors, or even cause the session to terminate. Before setting the local device using the Path Configuration file, confirm that no Remote Advanced Copy sessions are running.  
The [Advanced Copy Status] "REC Session List" function can be used to check whether or not a Remote Advanced Copy session is running.
- When logged on using a Resource Domain Administrator account, the [Set Advanced Copy Path] menu is not displayed.



**Note**

This function can only be used to setup the local device with a Path Configuration file which has been created using the [Create Advanced Copy Information] function.

The following explains the procedures of [Set Advanced Copy Path].  
The following settings are available.

- [Set Advanced Copy Path](#)
- [Initialize Advanced Copy Path](#)

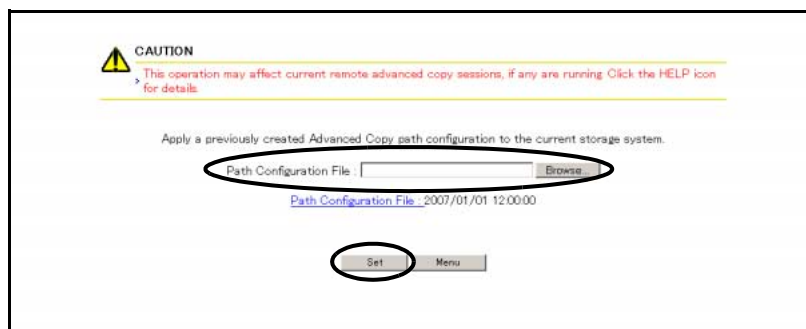
Procedures for each operation are described below.

### 6.6.3.1 Set Advanced Copy Path

This section describes the procedure to set the Advanced Copy Paths.

#### Procedure

- 1 Click [Set Advanced Copy Path] under the Remote Advanced Copy Configuration in the [Settings] menu.  
→ The [Set Advanced Copy Path (Initial)] screen appears.
- 2 Click the [Browse...] button, select a Path Configuration file, and click the [Set] button.



→ The [Set Advanced Copy Path (Setting Check)] screen appears.

#### Caution

- In the following cases, an error screen appears.
  - When no file is selected, and the [Set] button is clicked
  - When the selected file is not a Path Configuration file
  - When the Local Box ID is not included in the Path Configuration file
  - When the local device configuration obtained from the device differs from the local device configuration obtained from the Path Configuration file
- After the [Path Configuration File] link is clicked, the Path Configuration file specified the previous time must be saved within one minute. If the download dialog box is left open for more than a minute, the file saving operation may terminate and the file may not be downloaded successfully. If the downloaded file cannot be opened, the download may have failed, in which case try downloading again.



Note

- When there is no local path device configuration, only a Local Box ID, the local device's path configuration is initialized. Refer to ["6.6.3.2 Initialize Advanced Copy Path" \(page 583\)](#) for details about initializing path configuration.
- To download the Path Configuration file specified the previous time, click the [Path Configuration File] link. Only the local device's path configuration can be downloaded as a Path Configuration file.

### 3 Click the [OK] button.

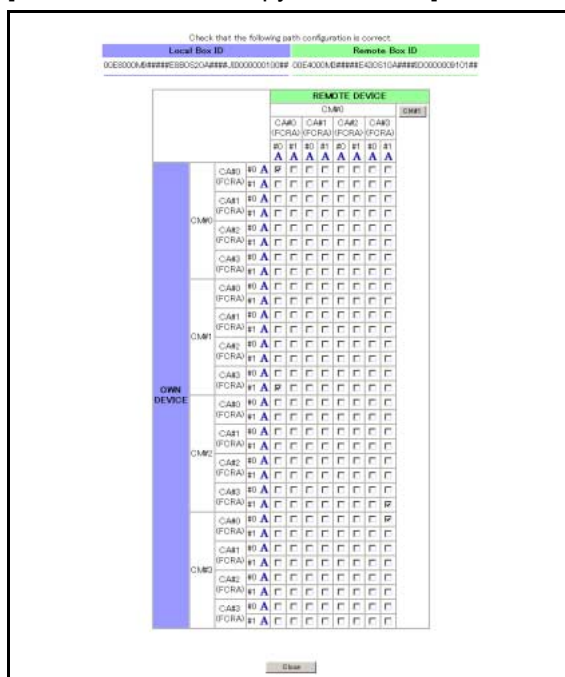


→ The [Set Advanced Copy Path (Setting Result)] screen appears.

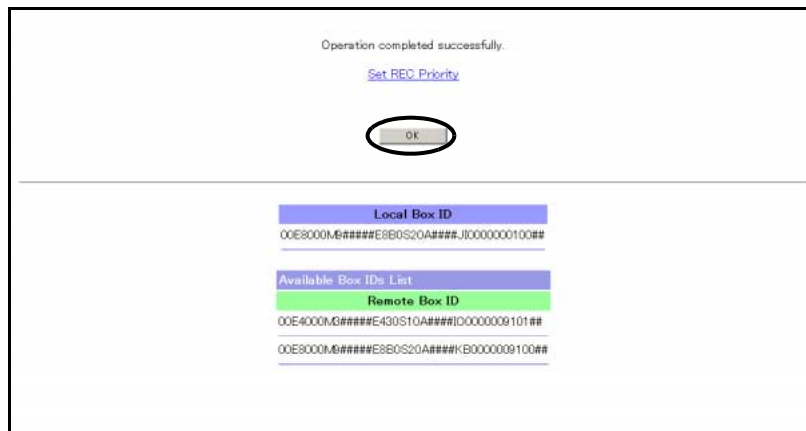


Note

Clicking the [Remote Box ID] link displays the path matrix between Local device and selected Remote device. When changing the path configuration between Local device and Remote device, use the [Create Advanced Copy Information] function.



**4** Click the [OK] button.



→ Returns to the [Menu] screen.



**Note**

- Clicking the [Set REC Priority] link jumps to the initial screen of the [Set REC Priority] function. After normally completing the [Set Advanced Copy Path], set the REC executing speed using the [Set REC Priority] function if you want to use REC.
- After normally completing the [Set Advanced Copy Path], use the [Check Advanced Copy Path] function to confirm that the Advanced Copy path of the Local device has been correctly set.

**End of procedure**

### 6.6.3.2 Initialize Advanced Copy Path

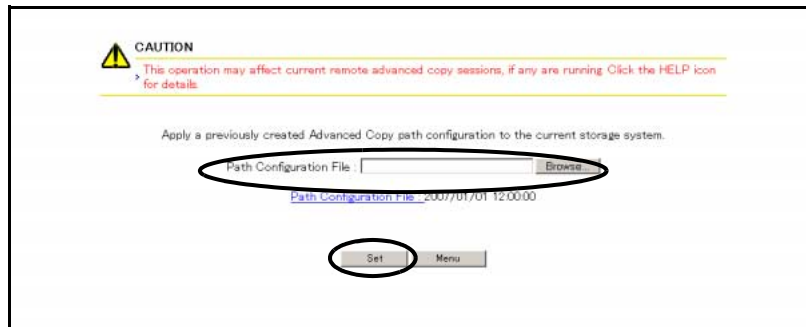
When there is no local path device configuration, only a Local Box ID, the local device's path configuration is initialized. When initializing Advanced Copy path settings, first, delete the Advanced Copy path configuration of the local device from the Path Configuration file according to the procedure in ["6.6.2.1 Edit Path Configurations" \(page 548\)](#).

This section describes procedure to initialize the Advanced Copy Path settings.

#### **Procedure**

- 1** Click [Set Advanced Copy Path] under the Remote Advanced Copy Configuration in the [Settings] menu.  
→ The [Set Advanced Copy Path (Initial)] screen appears.

- 2 Click the [Browse...] button, select a Path Configuration file, and click the [Set] button.

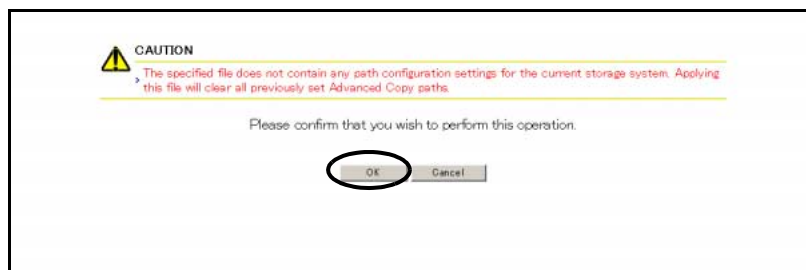


→ The [Set Advanced Copy Path (Setting Check (Path Initialization))] screen appears.

**Caution**

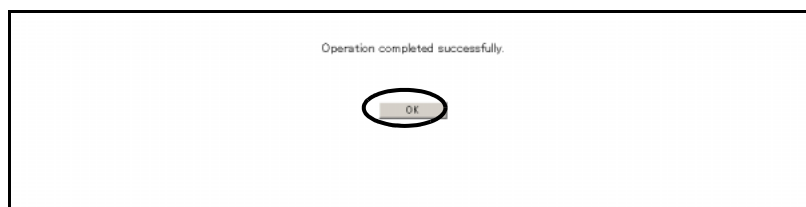
- In the following cases, an error screen appears.
  - When no file is selected, and the [Set] button is clicked
  - When the selected file is not a Path Configuration file
  - When the Local Box ID is not included in the Path Configuration file
  - When the local device configuration obtained from the device differs from the local device configuration obtained from the Path Configuration file

- 3 Click the [OK] button.



→ The [Set Advanced Copy Path (Setting Result (Path Initialization))] screen appears.

- 4 Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 6.6.4 Check Advanced Copy Path

This function checks whether or not the path configuration between two connected devices is appropriately set as the path in use.

### Caution

When logged on using a Resource Domain Administrator account, the [Check Advanced Copy Path] menu is not displayed.



### Note

This function checks the path status by transmitting commands to the Advanced Copy path between devices. If you execute the [Set Advanced Copy Path] function, be sure to check the path status using the [Check Advanced Copy Path] function.

The Advanced Copy Paths may be checked as follows:

### Procedure

- 1 Click [Check Advanced Copy Path] under the Remote Advanced Copy Configuration in the [Settings] menu.  
→ The [Check Advanced Copy Path (Initial)] screen appears.

### Caution

If the Advanced Copy Path is not set, a message to that effect appears. Click the [OK] button to return to the [Menu] screen.

- 2 Click the [Box ID] link to check the path status.



→ The [Check Advanced Copy Path (Path Status)] screen appears.

### 3 Check the path status.

- For FC-RS path only

Local Box ID			Remote Box ID		
00E8000M#####E8B0S20A####J10000000100##			00E4000M#####E430S10A####J00000000101##		

Path information between devices					
Device CA information			Remote CA information		Status
CM#	CA#	Port#	Mode	WWN / iSCSI Name	
CM#0	CA#0 (FCRA)	Port#0	A	2040000E5D6A0000	Normal
			A	2171000E5D6A0000	Normal
CM#1	CA#3 (FCRA)	Port#1	A	2040000E5D6A0000	Normal
			A	2171000E5D6A0000	Normal
CM#2	CA#3 (FCRA)	Port#1	A	2170000E5D6A0000	Normal
			A	2041000E5D6A0000	Normal
CM#3	CA#0 (FCRA)	Port#0	A	2170000E5D6A0000	Normal
			A	2041000E5D6A0000	Normal

Return

- For iSCSI-RA path only

Local Box ID			Remote Box ID		
00E8000M#####E8B0S20A####J10000000100##			00E8000M#####E8B0S20A####J10000000101##		

Path information between devices					
Device CA information			Remote CA information		Status
CM#	CA#	Port#	Mode	WWN / iSCSI Name	
CM#0	CA#0 (iSCSI-RA)	Port#0	A	qn.2000-09.com.fujitsu.storage-system.e8000	Normal
			A	qn.2000-09.com.fujitsu.storage-system.e8000	Normal
	CA#0 (iSCSI-RA)	Port#0	A	qn.2000-09.com.fujitsu.storage-system.e8000	Normal
			A	qn.2000-09.com.fujitsu.storage-system.e8000	Normal
CM#1	CA#3 (iSCSI-RA)	Port#1	A	qn.2000-09.com.fujitsu.storage-system.e8000	Normal
			A	qn.2000-09.com.fujitsu.storage-system.e8000	Normal
	CA#0 (iSCSI-RA)	Port#0	A	qn.2000-09.com.fujitsu.storage-system.e8000	Normal
			A	qn.2000-09.com.fujitsu.storage-system.e8000	Normal
CM#2	CA#3 (iSCSI-RA)	Port#1	A	qn.2000-09.com.fujitsu.storage-system.e8000	Normal
			A	qn.2000-09.com.fujitsu.storage-system.e8000	Normal
CM#3	CA#3 (iSCSI-RA)	Port#1	A	qn.2000-09.com.fujitsu.storage-system.e8000	Normal
			A	qn.2000-09.com.fujitsu.storage-system.e8000	Normal

Return

Refer to "[A.6.6 Advanced Copy Status \(Advanced Copy Path Status\) Screen](#)" (page 699) for screen details.

#### Caution

When no path is set between the local device and the remote device, a message to that effect is displayed. Click the [Return] button to return to the [Advanced Copy Status (Initial)] screen.

### 4 Click the [Return] button.

→ Returns to the [Check Advanced Copy Path (Initial)] screen.

### 5 Click the [Menu] button.

→ Returns to the [Menu] screen.

End of procedure

## 6.7 Setting Encryption

The following settings can be performed from this menu.

- Set Encryption Mode

### 6.7.1 Set Encryption Mode

This function is used to enable or disable the encryption mechanism and change the Encryption Mode.

#### Caution

- The Encryption Mode must be set to either Fujitsu Original Encryption or AES for the encryption mechanism to be used. The other encryption menus are not available until the Encryption Mode is set.
- The encryption mechanism is turned off by setting the Encryption Mode to "Encryption Mode invalidity" and rebooting the ETERNUS DX400/ DX8000 series.



#### Note

Delete all encrypted and encrypting volumes before changing the Encryption Mode.

The procedure to set the encryption mode is described below.

- [Set Encryption Mode](#)
- [Change Encryption Mode](#)

The procedures are described below.

#### 6.7.1.1 Set Encryption Mode

The procedure to enable the Encryption Mode is described below.  
(Change "Encryption Mode invalidity" to "Fujitsu Original Encryption" or "AES")

#### Procedure

- 1 Click [Set Encryption Mode] under the Setting Encryption in the [Settings] menu.  
→ The [Set Encryption Mode (Initial)] screen appears.

**Caution** 

In the following cases, this function cannot be used.  
Click the [OK] button to return to the [Menu] screen.

- When the storage system already contains encrypted volumes.
- When the storage system is encrypting volumes.
- When the memory capacities installed in each of the device's CMs are not matched.
- When enough memory to enable the encryption mode is not obtained. (The encryption mechanism requires 260MB of memory for ETERNUS DX410 and 520MB of memory for other storage systems.)

**2** Select an Encryption Mode, and click the [Set] button.



→ The [Set Encryption Mode (Check Setting)] screen appears.

**3** Click the [OK] button to set the Encryption Mode.



→ The [Set Encryption Mode (Update Setting)] screen appears.

When the processing completes, the [Set Encryption Mode (Setting Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 6.7.1.2 Change Encryption Mode

The procedure to change or disable the Encryption Mode is described below.  
(Change "Fujitsu Original Encryption" to/from "AES") or  
(Change "Fujitsu Original Encryption" or "AES" to "Encryption Mode invalidity")

#### Procedure

- 1 Click [Set Encryption Mode] under the Setting Encryption in the [Settings] menu.  
→ The [Set Encryption Mode (Initial)] screen appears.

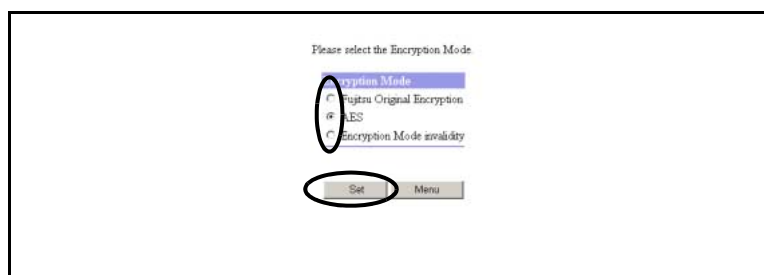
#### Caution



In the following cases, this function cannot be used.  
Click the [OK] button to return to the [Menu] screen.

- When the storage system already contains encrypted volumes.
- When the storage system is encrypting volumes.
- When the memory capacities installed in each of the device's CMs are not matched.

- 2 Change an Encryption Mode, and click the [Set] button.



→ The [Set Encryption Mode (Check Setting)] screen appears.

**3** Click the [OK] button to set the Encryption Mode.



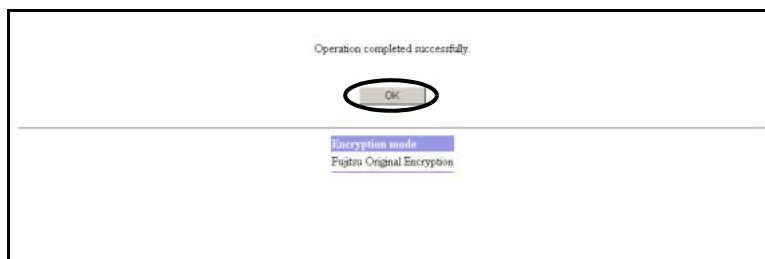
→ The [Set Encryption Mode (Update Setting)] screen appears.  
When the processing completes, the [Set Encryption Mode (Setting Result)] screen appears.



Note

The [Set Encryption Mode (Update Setting)] screen is not displayed when the Encryption Mode is changed from Fujitsu Original Encryption to AES, or from AES to Fujitsu Original Encryption.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.



Caution

When the Encryption Mode is to be disabled, Power Off/On the device after logging off the ETERNUSmgr.

End of procedure

## 6.8 Others

The following settings can be performed from this menu.

- Set IP Address for USER Port
- Set IP Address for REMCS Port
- Set Date and Time
- Set Box ID

### 6.8.1 Set IP Address for USER Port

The network environment for ETERNUS DX400/DX8000 series to communicate with an external device is set on this screen.

This function sets IP Address, Subnet Mask of the device, Gateway for the network connection outside the subnet, and network address to operate the ETERNUS DX400/DX8000 series from outside the subnet", etc. The IP Address set on this screen is used to communicate between the ETERNUSmgr and ETERNUS DX400/DX8000 series.

#### Caution



When the IP Address or Subnet Mask of the ETERNUS DX400/DX8000 series is changed, the network address (IP Address or Subnet Mask) of FST may also be changed.



#### Note

When using REMCS port of ETERNUS DX400/DX8000 series for communication, set IP Address and Subnet Mask, etc. using the [Set IP Address for REMCS Port] function.

This section explains the setting procedures for [Set IP Address for USER Port]. The following can be set in [Set IP Address for USER Port].

- [Set IP Address for USER Port](#)
- [Delete IP Address for USER Port](#)

Procedures for each operation are described below.

#### 6.8.1.1 Set IP Address for USER Port

##### Procedure

- 1 Click [Set IP Address for USER Port] under the Others in the [Settings] menu.  
→ The [Set IP Address for USER Port (Initial)] screen appears.  
Refer to "[A.33.1 Set IP Address for USER Port \(Initial\) Screen](#)" ([page 796](#)) for screen details.

**2** Check and change the following items, and click the [Set] button.

- IP Address (Required)
- Subnet Mask (Required)
- Gateway
- Allow same subnet access
- DNS Settings
- IP Access Settings
- Service Settings

The screenshot shows the ETERNUS settings interface with the following sections:

- Network Settings:** IP Address (192.168.1.46), Subnet Mask (255.255.255.0), Gateway (192.168.1.1), Allow same subnet access? (Yes selected).
- DNS Settings:** PrimaryDNS (10.23.4.0), SecondaryDNS (10.0.0.0).
- IP Access Settings:** A table with columns 'No.', 'Network Address', and 'Subnet Mask'. It lists 15 entries (#0 to #14). Entry #0 is pre-filled with 192.168.0.10 and 255.255.0.0.
- Service Settings:** HTTP Port No. (80), HTTP (enable selected), ping (enable selected), HTTPS (enable selected), Maintenance Port (enable selected), Maintenance Secure Port (enable selected).

At the bottom, there are three buttons: 'Set' (circled), 'Delete', and 'Menu'.

→ The [Set IP Address for USER Port (Setting Check)] screen appears.

■ Supplemental remarks

- To allow access from the same subnet as the storage system:  
Set the "Allow same subnet access?" item in the "Network Settings" field to "Yes".
- To allow access from a different subnet to that of the storage system:  
Set the target "Network Address" and "Subnet Mask" in the "IP Access Settings" field.  
(Example)
  - To allow access from an entire subnet, specify the base network address and subnet mask.  
 Network address: 10.20.30.0  
 Subnet Mask: 255.255.255.0
  - To allow access from a particular client, specify its IP address and subnet mask.  
 Network address: 10.20.30.40  
 Subnet Mask: 255.255.255.0

**Caution**



- For security, when Storage Foundation Software ETERNUS SF (such as ETERNUS SF Storage Cruiser) is not used, select [Disable] for the "Maintenance Port" and the "Maintenance Secure Port" in the Service Settings.
- When using the Storage Foundation Software ETERNUS SF via the "Maintenance Secure Port", Storage Foundation Software ETERNUS SF requires functions to send and receive encrypted communication data.
- When clicking the [Set] button in the following conditions, an error screen appears
  - When entering characters other than numeric characters, or a value that exceeds the maximum value to the column of the setting item
  - When required items are not set
  - When settings are not 0 Byte (not set) or 4 Byte (set) in each item
  - When the Primary DNS has not been set and Secondary DNS has been set
  - When the DNS is outside of the subnet for the IP Address and the gateway has not been set
  - When either the Network Address or the Subnet Mask has been set for the IP Access Settings
  - When the Network Address of IP Access Settings has been set and Gateway is not set
  - When the IP Address, Gateway, DNS, or the Network Address of the IP Access Settings is local host address
  - When the IP Address, Gateway, DNS, or the Network Address of the IP Access Settings is not Class A, B, or C
  - When "255.255.255.255" or "0.0.0.0" is set as a Subnet Mask
  - When the IP Address is the same as the Network Address or the broadcast address
  - When the IP Address of USER Port is the same as the IP Address of REMCS Port
  - When the IP Address of USER Port and IP Address of REMCS Port are in the same subnet
  - When the broadcast address of the USER port and Gateway are the same
  - When the broadcast address of the USER port and DNS (Primary DNS and/or Secondary DNS) are the same
  - When the Gateway has been set, and the IP Address and the Gateway are in the same subnet
  - When the Gateway has been set, and the IP Address and the Gateway are not in the same subnet
  - When the Network Address of IP Access Settings and the IP Address of USER Port are in the same subnet
  - When the Network Address of IP Access Settings and the IP Address for [Set IP Address for REMCS Port] are the same

- When the Network Address of IP Access Settings and the IP Address for [Set IP Address for REMCS Port] are in the same subnet
- When the Network Address of IP Access Settings for [Set IP Address for REMCS Port] and the IP Address are the same
- When the Network Address of IP Access Settings for [Set IP Address for REMCS Port] and the IP Address are in the same subnet
- When entering characters other than numeric characters, or a value other than the range of the HTTP Port No. (other than 1 to 65535)
- When entering a number that has already been used for the ETERNUS DX400/DX8000 series, such as "23", "443", "1999", or "1372" for the HTTP Port No.



Note

Not only the [Network Address] but also the [IP Address] can be set in the IP Access Settings.

### 3 Click the [OK] button.

Please confirm that you wish to perform this operation.

OK Cancel

---

**Network Settings**

IP Address	192.168.1.46
Subnet Mask	255.255.255.0
Gateway	192.168.1.1
Allow same subnet access?	<input checked="" type="radio"/> Yes <input type="radio"/> No

**DNS Settings**

PrimaryDNS	10.23.43
SecondaryDNS	10.0.8.3

**IP Access Settings**

No.	Network Address	Subnet Mask
#0	192.100.3.10	255.255.0.0
#1	-	-
#2	-	-
#3	-	-
#4	-	-
#5	-	-
#6	-	-
#7	-	-
#8	-	-
#9	-	-
#10	-	-
#11	-	-
#12	-	-
#13	-	-
#14	-	-

**Service Settings**

HTTP Port No.	80
HTTP	<input checked="" type="radio"/> enable <input type="radio"/> disable
ping	<input checked="" type="radio"/> enable <input type="radio"/> disable
HTTPS	<input type="radio"/> enable <input checked="" type="radio"/> disable
Maintenance Port	<input checked="" type="radio"/> enable <input type="radio"/> disable
Maintenance Secure Port	<input type="radio"/> enable <input checked="" type="radio"/> disable

→ The [Set IP Address for USER Port (Setting Result)] screen appears.

**4** Click the [Close] or [OK] button.

Either the [Close] or [OK] button will be displayed, depending on the device conditions.

■ The [Close] button is displayed under the following conditions:

- Network address (IP Address or Subnet Mask) of the device (USER Port) is changed
- IP Address or Subnet Mask of the FST Port is changed
- The device cannot be connected to the destination, and so on

**CAUTION**

If you change IP address or Subnet Mask, it is necessary to change network address of FST.  
Please close the browser.

After a while, please logon.

Operation completed successfully.

Close

---

Network Settings		
IP Address	192.168.1.46	
Subnet Mask	255.255.255.0	
Gateway	192.168.1.1	
Allow same subnet access?	<input checked="" type="radio"/> Yes <input type="radio"/> No	

DNS Settings	
PrimaryDNS	10.23.4.3
SecondaryDNS	10.0.8.3

IP Access Settings		
No.	Network Address	Subnet Mask
#0	192.100.3.10	255.255.0.0
#1	-	-
#2	-	-
#3	-	-
#4	-	-
#5	-	-
#6	-	-
#7	-	-
#8	-	-
#9	-	-
#10	-	-
#11	-	-
#12	-	-
#13	-	-
#14	-	-

Service Settings	
HTTP Port No.	80
HTTP	<input checked="" type="radio"/> enable <input type="radio"/> disable
ping	<input checked="" type="radio"/> enable <input type="radio"/> disable
HTTPS	<input type="radio"/> enable <input checked="" type="radio"/> disable
Maintenance Port	<input checked="" type="radio"/> enable <input type="radio"/> disable
Maintenance Secure Port	<input type="radio"/> enable <input checked="" type="radio"/> disable

→ The window is closed.

**Caution** 

- When the IP Address or Subnet Mask of the ETERNUS DX400/ DX8000 series is changed, the network address (IP Address or Subnet Mask) of FST may also be changed.
- It is necessary to log on again after the setting is complete.

■ The [OK] button is displayed under the following conditions:

- IP Access Settings are changed
- Service Settings are changed, and so on

Operation completed successfully.

**OK**

---

**Network Settings**

IP Address	192.168.1.46
Subnet Mask	255.255.255.0
Gateway	192.168.1.1
Allow same subnet access?	<input checked="" type="radio"/> Yes <input type="radio"/> No

**DNS Settings**

PrimaryDNS	10.23.43
SecondaryDNS	10.0.8.3

**IP Access Settings**

No.	Network Address	Subnet Mask
#0	192.100.3.10	255.255.0.0
#1	-	-
#2	-	-
#3	-	-
#4	-	-
#5	-	-
#6	-	-
#7	-	-
#8	-	-
#9	-	-
#10	-	-
#11	-	-
#12	-	-
#13	-	-
#14	-	-

**Service Settings**

HTTP Port No.	80
HTTP	<input checked="" type="radio"/> enable <input type="radio"/> disable
ping	<input checked="" type="radio"/> enable <input type="radio"/> disable
HTTPS	<input type="radio"/> enable <input checked="" type="radio"/> disable
Maintenance Port	<input checked="" type="radio"/> enable <input type="radio"/> disable
Maintenance Secure Port	<input type="radio"/> enable <input checked="" type="radio"/> disable

→ Return to the [Menu] screen.

End of procedure

### 6.8.1.2 Delete IP Address for USER Port

#### Procedure

- 1 Click [Set IP Address for USER Port] under the Others in the [Settings] menu.  
 → The [Set IP Address for USER Port (Initial)] screen appears.

- 2 Click the [Delete] button in order not to use USER port.

The screenshot shows the ETERNUS settings menu with the following sections:

- Network Settings**
  - IP Address: 192.168.1.45
  - Subnet Mask: 255.255.255.0
  - Gateway: 192.168.1.1
  - Allow same subnet access? ☒ Yes ☐ No
- DNS Settings**
  - PrimaryDNS: 10.23.4.8
  - SecondaryDNS: 10.0.8.8
- IP Access Settings**

No.	Network Address	Subnet Mask
#0	192.168.0.0	255.255.0.0
#1		
#2		
#3		
#4		
#5		
#6		
#7		
#8		
#9		
#10		
#11		
#12		
#13		
#14		
- Service Settings**
  - HTTP Port No.: 80
  - HTTP: ☒ enable ☐ disable
  - ping: ☒ enable ☐ disable
  - HTTPS: ☐ enable ☒ disable
  - Maintenance Port: ☒ enable ☐ disable
  - Maintenance Secure Port: ☐ enable ☒ disable

At the bottom, there are three buttons: [Set], [Delete] (circled), and [Menu].

→ The [Set IP Address for USER Port (Deletion Check)] screen appears.

- 3 Click the [OK] button.

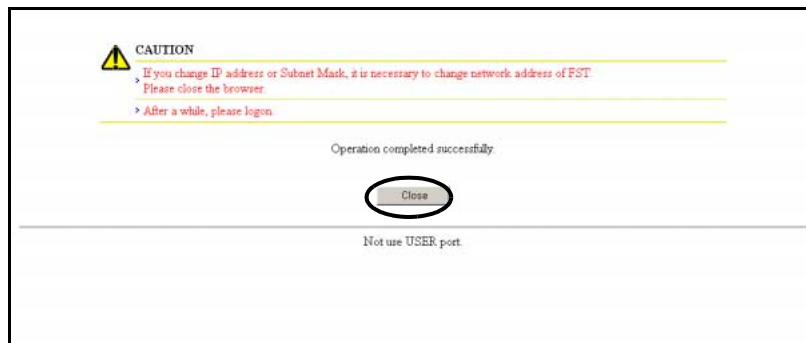
The screenshot shows a confirmation dialog box with the text: "Please confirm that you wish to perform this operation."

Below the text are two buttons: [OK] (circled) and [Cancel].

At the bottom of the dialog box, it says: "Not use USER port."

→ The [Set IP Address for USER Port (Deletion Result)] screen appears.

4 Click the [Close] button.



→ The window is closed.

**Caution**

- When the device is set to communicate with ETERNUSmgr via the USER Port, this communication will be interrupted if the USER Port IP Address or Subnet Mask is deleted. Please contact a maintenance engineer and have the USER Port registered and setup again from FST.
- It is necessary to logon again, after setting is completed.

End of procedure

## 6.8.2 Set IP Address for REMCS Port

This function performs the network environment settings with which the ETERNUS DX400/DX8000 series communicates with an external device using the REMCS Port IP address. REMCS port is a LAN port different from the USER port usually used. This LAN port is used for remote maintenance only.



**Note**

Execute from the [Set IP Address for USER Port] function for setting and updating the USER port (main LAN port) of ETERNUS DX400/DX8000 series.

The following explains the setting procedures for [Set IP Address for REMCS Port]. The following settings are available for [Set IP Address for REMCS Port].

- [Set IP Address for REMCS Port](#)
- [Delete REMCS Port Settings](#)

These procedures are explained in the following sections.

### 6.8.2.1 Set IP Address for REMCS Port

#### Procedure

- 1 Click [Set IP Address for REMCS Port] under the Others in the [Settings] menu.  
→ The [Set IP Address for REMCS Port (Initial)] screen appears.  
Refer to "[A.34.1 Set IP Address for REMCS Port \(Initial\) Screen](#)" ([page 798](#)) for screen details.
- 2 Check and change the following items, and click the [Set] button.
  - IP Address
  - Subnet Mask
  - Gateway
  - Allow same subnet access
  - DNS Settings
  - IP Access Settings
  - Service Settings

**Network Settings**

IP Address	192	168	1	45
Subnet Mask	255	255	255	0
Gateway	192	168	1	1
Allow same subnet access?	<input checked="" type="radio"/> Yes <input type="radio"/> No			

**DNS Settings**

PrimaryDNS	10	23	4	8
SecondaryDNS	10	0	8	8

**IP Access Settings**

No.	Network Address	Subnet Mask
#0	192 168 0 0	255 255 0 0
#1		
#2		
#3		
#4		
#5		
#6		
#7		
#8		
#9		
#10		
#11		
#12		
#13		
#14		

**Service Settings**

HTTP Port No.	80
HTTP	<input checked="" type="radio"/> enable <input type="radio"/> disable
ping	<input checked="" type="radio"/> enable <input type="radio"/> disable
HTTPS	<input type="radio"/> enable <input checked="" type="radio"/> disable
Maintenance Port	<input checked="" type="radio"/> enable <input type="radio"/> disable
Maintenance Secure Port	<input type="radio"/> enable <input checked="" type="radio"/> disable

**Buttons:** Set, Delete, Menu

→ The [Set IP Address for REMCS Port (Setting Check)] screen appears.

## Caution



- For security, when Storage Foundation Software ETERNUS SF (such as ETERNUS SF Storage Cruiser) is not used, select [Disable] for the "Maintenance Port" and the "Maintenance Secure Port" in the Service Settings.
- When using the Storage Foundation Software ETERNUS SF via the "Maintenance Secure Port", Storage Foundation Software ETERNUS SF requires functions to send and receive encrypted communication data.
- When clicking the [Set] button in the following conditions, an error screen appears.
  - When entering characters other than numeric characters, or a value that exceeds the maximum value to the field of the setting item
  - When required items are not set
  - When settings are not 0 Byte (not set) or 4 Byte (set) in each item
  - When the Primary DNS has not been set and Secondary DNS has been set
  - When the DNS is outside of the subnet for the IP Address and the gateway has not been set
  - When either the Network Address or the Subnet Mask has been set for the IP Access Settings
  - When the Network Address of IP Access Settings has been set but the Gateway is not set
  - When the IP Address, Gateway, DNS, or the Network Address of the IP Access Settings is local host address
  - When the IP Address, Gateway, DNS, or the Network Address of the IP Access Settings is not Class A, B, or C
  - When "255.255.255.255" or "0.0.0.0" is set as a subnet mask
  - When IP Address is the same as the Network Address or the broadcast address
  - When the IP Address of the REMCS Port is the same as the IP Address of USER Port
  - When the IP Address of the REMCS Port and the IP Address of the USER Port are in the same subnet
  - When the broadcast address of the REMCS port and Gateway are the same
  - When the broadcast address of the REMCS port and DNS (Primary DNS and/or Secondary DNS) are the same
  - When the Gateway has been set, and the IP Address and the Gateway are the same
  - When the Gateway has been set, and the IP Address and the Gateway are not in the same subnet
  - When the Network Address of IP Access Settings and the IP Address of REMCS Port are in the same subnet
  - When the Network Address of IP Access Settings and the IP Address for [Set IP Address for USER Port] are the same

- When the Network Address of IP Access Settings and the IP Address for [Set IP Address for USER Port] are in the same subnet
- When the Network Address of IP Access Settings for [Set IP Address for USER Port] and the IP Address are the same
- When the Network Address of IP Access Settings for [Set IP Address for USER Port] and the IP Address are in the same subnet
- When entering characters other than numeric characters, or a value other than the range of the HTTP Port No.(other than 1 to 65535)
- When entering a number that has already been used for the ETERNUS DX400/DX8000 series, such as "23", "443", "1999", or "1372" for the HTTP Port No.



Note

Not only the [Network Address] but also the [IP Address] can be set in the IP Access Settings.

### 3 Click the [OK] button.

Please confirm that you wish to perform this operation.

---

**Network Settings**

IP Address	192.168.1.46
Subnet Mask	255.255.255.0
Gateway	192.168.1.1
Allow same subnet access?	<input checked="" type="radio"/> Yes <input type="radio"/> No

**DNS Settings**

PrimaryDNS	10.23.43
SecondaryDNS	10.0.8.3

**IP Access Settings**

No.	Network Address	Subnet Mask
#0	192.100.3.10	255.255.0.0
#1	-	-
#2	-	-
#3	-	-
#4	-	-
#5	-	-
#6	-	-
#7	-	-
#8	-	-
#9	-	-
#10	-	-
#11	-	-
#12	-	-
#13	-	-
#14	-	-

**Service Settings**

HTTP Port No.	80
HTTP	<input checked="" type="radio"/> enable <input type="radio"/> disable
ping	<input checked="" type="radio"/> enable <input type="radio"/> disable
HTTPS	<input type="radio"/> enable <input checked="" type="radio"/> disable
Maintenance Port	<input checked="" type="radio"/> enable <input type="radio"/> disable
Maintenance Secure Port	<input type="radio"/> enable <input checked="" type="radio"/> disable

→ The [Set IP Address for REMCS Port (Setting Result)] screen appears.

**4** Click the [Close] or [OK] button.

Either the [Close] or [OK] button will be displayed, depending on the device conditions.

■ The [Close] button is displayed under the following conditions:

- IP Address or Subnet Mask of the FST Port is changed
- This device cannot be connected to the destination, and so on

**CAUTION**  
 > After a while, please login

Operation completed successfully.

**Close**

**Network Settings**

IP Address	192.168.1.46
Subnet Mask	255.255.255.0
Gateway	192.168.1.1
Allow same subnet access?	<input checked="" type="radio"/> Yes <input type="radio"/> No

**DNS Settings**

PrimaryDNS	10.23.43
SecondaryDNS	10.0.83

**IP Access Settings**

No.	Network Address	Subnet Mask
#0	192.100.3.10	255.255.0.0
#1	-	-
#2	-	-
#3	-	-
#4	-	-
#5	-	-
#6	-	-
#7	-	-
#8	-	-
#9	-	-
#10	-	-
#11	-	-
#12	-	-
#13	-	-
#14	-	-

**Service Settings**

HTTP Port No.	80
HTTP	<input checked="" type="radio"/> enable <input type="radio"/> disable
ping	<input checked="" type="radio"/> enable <input type="radio"/> disable
HTTPS	<input type="radio"/> enable <input checked="" type="radio"/> disable
Maintenance Port	<input checked="" type="radio"/> enable <input type="radio"/> disable
Maintenance Secure Port	<input type="radio"/> enable <input checked="" type="radio"/> disable

→ The screen is closed.

**Caution**



- When the IP Address or Subnet Mask of the ETERNUS DX400/ DX8000 series is changed, the network address (IP Address or Subnet Mask) of FST may also be changed.
- It is necessary to login again, after setting is complete.

- The [OK] button is displayed under the following conditions:
  - Network address (IP Address or Subnet Mask) of the device (REMCS Port) is changed
  - IP Access Settings are changed
  - Service Settings are changed, and so on

Operation completed successfully.

**OK**

---

**Network Settings**

IP Address	192.168.1.46
Subnet Mask	255.255.255.0
Gateway	192.168.1.1
Allow same subnet access?	<input checked="" type="radio"/> Yes <input type="radio"/> No

**DNS Settings**

PrimaryDNS	10.23.43
SecondaryDNS	10.0.83

**IP Access Settings**

No.	Network Address	Subnet Mask
#0	192.100.3.10	255.255.0.0
#1	-	-
#2	-	-
#3	-	-
#4	-	-
#5	-	-
#6	-	-
#7	-	-
#8	-	-
#9	-	-
#10	-	-
#11	-	-
#12	-	-
#13	-	-
#14	-	-

**Service Settings**

HTTP Port No.	80
HTTP	<input checked="" type="radio"/> enable <input type="radio"/> disable
ping	<input checked="" type="radio"/> enable <input type="radio"/> disable
HTTPS	<input type="radio"/> enable <input checked="" type="radio"/> disable
Maintenance Port	<input checked="" type="radio"/> enable <input type="radio"/> disable
Maintenance Secure Port	<input type="radio"/> enable <input checked="" type="radio"/> disable

→ Returns to the [Menu] screen.

**End of procedure**

### 6.8.2.2 Delete REMCS Port Settings

#### Procedure

- 1 Click [Set IP Address for REMCS Port] under the Others in the [Settings] menu.  
 → The [Set IP Address for REMCS Port (Initial)] screen appears.

- 2** Click the [Delete] button in order not to use REMCS port.

The screenshot shows the ETERNUS settings menu with the following sections:

- Network Settings**: IP Address (192, 168, 1, 45), Subnet Mask (255, 255, 255, 0), Gateway (192, 168, 1, 1), Allow same subnet access? (Yes selected, No unselected).
- DNS Settings**: PrimaryDNS (10, 23, 4, 0), SecondaryDNS (10, 0, 0, 0).
- IP Access Settings**: A table with 15 rows (No. #0 to #14) and two columns (Network Address, Subnet Mask). Row #0 is pre-filled with 192.168.0.0 and 255.255.0.0.
- Service Settings**: HTTP Port No. (80), HTTP (enable selected, disable unselected), ping (enable selected, disable unselected), HTTPS (enable unselected, disable selected), Maintenance Port (enable selected, disable unselected), Maintenance Secure Port (enable unselected, disable selected).

At the bottom, there are three buttons: Set, Delete (circled), and Menu.

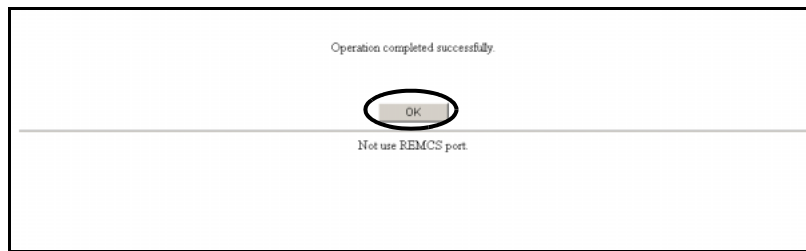
→ The [Set IP Address for REMCS Port (Deletion Check)] screen appears.

- 3** Click the [OK] button.

The screenshot shows a confirmation dialog box with the text: "Please confirm that you wish to perform this operation." Below the text are two buttons: OK (circled) and Cancel. At the bottom of the dialog, it says "Not use REMCS port."

→ The [Set IP Address for REMCS Port (Deletion Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 6.8.3 Set Date and Time

Date and time information, time differences, Daylight Saving Time (DST), and the Internet Time Server are set on this screen.

The [Set Date and Time] setting is used when moving to a new installation site, and/or changing the storage system date/time. Among others, this date/time setting is used by the internal log, battery expiration date check, Eco-mode and Remote Advanced Copy using iSCSI-RA. The time zone setting is used by the [Remote Support] function.

Using NTP is required for setting the date and time. If NTP is not available, periodically set the date and time (once a month).

**Caution**



- Date and Time must be set correctly if using iSCSI-RA.
- When setting Date and Time for the ETERNUS DX400/DX8000 series that uses iSCSI-RA, power Off/On the device immediately after completing the setting. If this is not performed, REC may not be available.
- Date and Time must be set correctly if using Eco-mode. If the date/time setting is wrong, disk motors will not be started and stopped as specified by the Eco-mode schedule.

The following explains the operating procedures for [Set Date and Time].

#### Procedure

- 1** Click [Set Date and Time] under the Others in the [Settings] menu.  
→ [Set Date and Time (Initial)] screen appears.

**2** Set the following items and click the [Set] button.

- Date and Time
  - Date and Time
- Time Difference
  - Time Zone
  - Time Difference
- Daylight Saving Time
  - DST
  - Start/End
- Internet Time Server
  - NTP Service
  - LAN Port

The screenshot shows the 'Date and Time' settings interface. A large oval highlights the 'Date and Time' section, which includes fields for Year (2007), Month (10), Day (27), Hour (0), Minute (0), and Second (0). Below this, the 'Time Zone' is set to 'GMT 00:00 Dublin, London, Manchester, Lisbon'. The 'Time Difference' is set to 'GMT' with a value of '00:00'. The 'Daylight Saving Time' section shows 'DST' set to 'ON' and 'By Week/Day' selected, with start and end times set to '01:00'. The 'Internet Time Server' section shows 'NTP Service' set to 'Enable' and 'LAN Port' set to 'USER'. At the bottom, the '[Set]' button is highlighted with a small oval.

→ The [Set Date and Time (Setting Check)] screen appears.

**Caution**

- If the current location is listed in the Time Zone pulldown, use the time difference from GMT to select the correct time zone.
- If the Time Zone is set to "Direct input", the actual Time Difference from GMT should be set.
- When clicking the [Set] button in the following conditions, an error screen appears.
  - When date and time are not set
  - When the entered values of date and time are not numerals, or out of range.
  - When "By Week/Day" is selected for DST and the same start time and end time was entered.
  - When "By Date" is selected for DST and the invalid date was entered.
  - When "By Date" is selected for DST and the same start time and end time was entered.

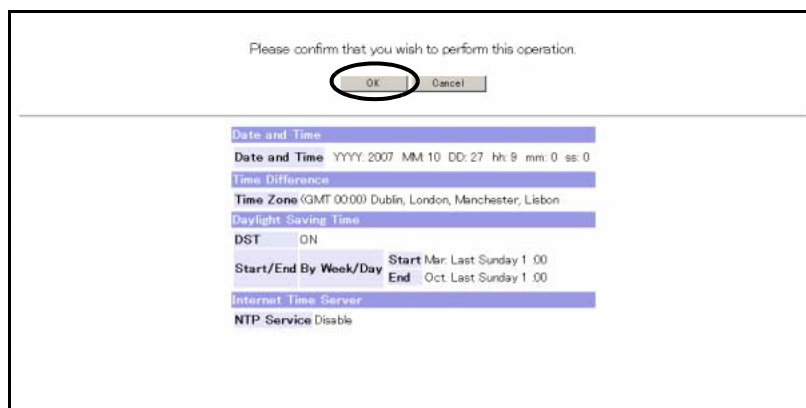
- When NTP Service is [Enable], but not input.
- When NTP Service is [Enable] and the entered values are not alphanumeric characters, or out of range.
- When the NTP Service is [Enable] and the "LAN Port" is [USER], and the IP address of the NTP server and the broadcast address for the USER port are the same.
- When the NTP Service is [Enable] and the "LAN Port" is [REMCS], and the IP address of the NTP server and the broadcast address for the REMCS port are the same.
- When the NTP Service is [Enable], and the IP address of the NTP server and the local host address are the same.
- When the NTP Service is [Enable], and the IP address of the NTP server are not Class A, B, or C.
- Multiple NTP servers cannot be specified.



Note

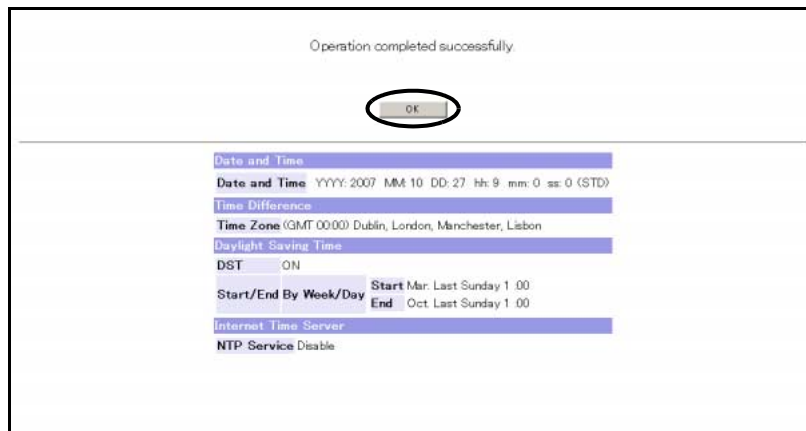
- If a NTP server is used:
  - the time will be synchronized every 3 hours.
  - the time correction method is [step: correct immediately].
- An SNTP server may be used instead of the NTP server.

**3** Click the [OK] button.



→ Displays the [Set Date and Time (Setting)] screen. After the process is successfully completed, the [Set Date and Time (Setting Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 6.8.4 Set Box ID

This function changes the Box ID that identifies the device in user system.

"Box ID" is a unique name to identify a device. The initial status of Box ID is the device ID which is created by combining device information (series name, model name, serial number, etc.). Box ID is used as information to identify the device from applications connected to the device, or used as copy source/copy destination information for remote advanced copy. However, if you upgrade or replace the device, the existing Box ID (device ID) which is based on the device information will change with the device change. Therefore, there is a risk that the backup data saved in the previous device cannot be used, so it is necessary to reconfigure the user system after the device is upgraded or replaced.

[Set Box ID] is a function to change the device ID to a name which is unique in the user system. When the device is upgraded or replaced, change the "Box ID" of a new device to the same name as the previous device name. By changing the Box ID, reconfiguring user system becomes unnecessary, and the new device is also able to access the backup data.

**Caution**



- Box ID is a unique name in user system. Change the Box ID to be different from that of other devices in the user system. When inputting Box ID, Box ID field will be blanks in the 40-character are all converted to "#". Therefore, all input Box IDs are saved to the device as 40 characters.  
When you do not change Box ID, the Device ID is handled as the Box ID.
- You cannot change Box ID during Advanced Copy (EC/OPC), Remote Advanced Copy (REC), or RAID Migration. Change Box ID after the functions described above are completed. You can check the operating status of Advanced Copy and Remote Advanced Copy by the [Advanced Copy Status] function. Also, you can check the operating status of RAID Migration using the [Progress of RAID Migration] function.
- When the Box ID of a device, whose Advanced Copy Path configuration has already been set, is changed, Remote Advanced Copy (REC) cannot be executed. Set Advanced Copy path configuration again to all the related devices after remaking the Advanced Copy Path configuration with the new Box ID.

The following explains the operating procedures for [Set Box ID].

**Procedure**

- 1 Click [Set Box ID] under the Other in the [Settings] menu.  
→ The [Set Box ID (Initial)] screen appears.
- 2 Set Box ID and click the [Set] button.



→ The [Set Box ID (Check Setting)] screen appears.

**Caution**



When clicking the [Set] button in the following conditions, an error screen appears.

- When Box ID is not entered
- When the entered value of Box ID is not alphabetic characters (uppercase), numbers, blanks, or "#".



**Note**

If you specify "blank" as a "Box ID", it is displayed after replacing it with "#". If the number of entered Box ID characters is less than 40 characters, "###..." is added to the end of the entered Box ID, and a Box ID of 40 characters is displayed.

**3** Click the [OK] button.

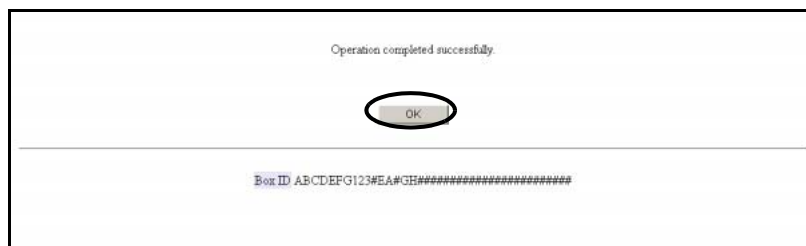


→ The [Set Box ID (Updating Configuration Information)] screen appears, and when the operation completes successfully, [Set Box ID (Setting Result)] screen appears.

**Caution**

- The Box ID of 40 characters set in the device is displayed. Every blank is replaced by "#" and displayed.
- When the Box ID of a device, whose Advanced Copy Path configuration has already been set, is changed, Remote Advanced Copy (REC) cannot be executed. Set Advanced Copy path configuration again to all the related devices after remaking the Advanced Copy Path configuration with the new Box ID.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## Chapter 7 Download Menu

This chapter describes the functions of the Download menu.

### 7.1 Download

The following settings can be performed on this screen.

- Export Configuration
- Export Log
- Set Syslog
- Export Panic Dump

#### 7.1.1 Export Configuration

This is a function to save the configuration information stored in the ETERNUS DX400/DX8000 series in the user-specified folder as a configuration information file.



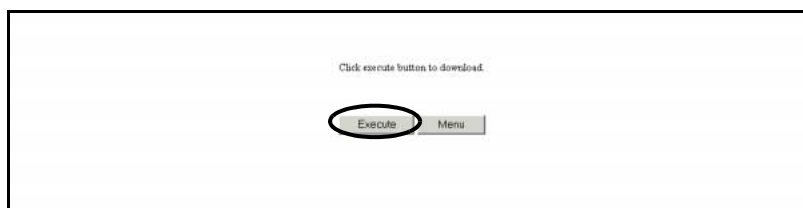
#### Note

The exported information may be needed for restoring the status before an error occurred. When changing the ETERNUS DX400/DX8000 series configuration information, it is recommended to back up the configuration information file before change using this function.

The following explains the procedures of Export Configuration.

#### Procedure

- 1 Click [Export Configuration] in the [Download] menu.  
→ The [Export Configuration (Initial)] screen appears.
- 2 Click the [Execute] button and export the configuration information.



→ The [Export Configuration (Export File)] screen appears.

- 3 Click the [Configuration file] link and save the exported file.  
When saving, use the specified extension.



**Caution**

- Set the file name extension to (.cfg).
- If you save a configuration information file, save the file within one minute after clicking the [Configuration file] link. If the download dialog box is left open for over a minute, the download operation may be terminated with an unsuccessfully downloaded file. If the downloaded file cannot be opened, the download has failed, try the download again.

- 4 Click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

## 7.1.2 Export Log

This is a function to export and save the ETERNUS DX400/DX8000 series maintenance information (log) according to user-specified time and units. Floppy disk, hard disk, and mail transmission are available as file save destinations. Users can decide a log division unit in accordance with save destination.

- The maintenance information to be exported
  - Internal log  
Information about errors, warning and traces found in CM/CA, etc.
  - Configuration information  
Configuration information exported from the ETERNUS DX400/DX8000 series

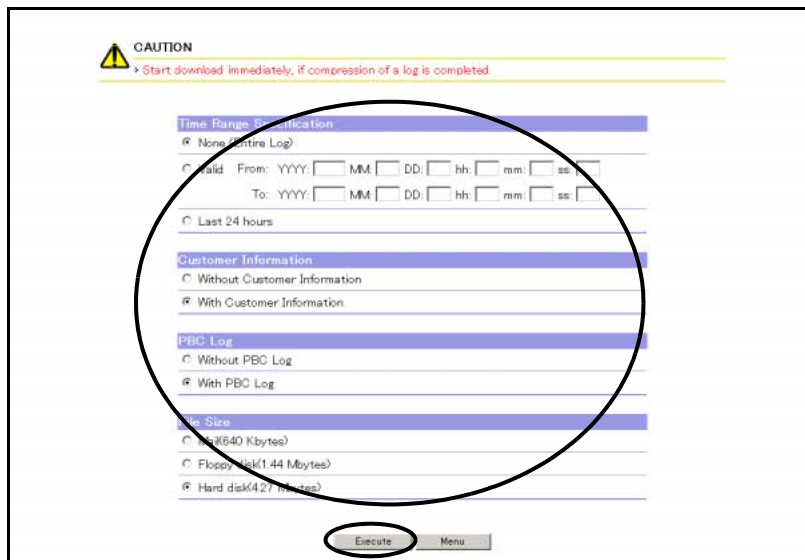
**Caution**

- Internal log and Configuration information cannot be exported separately.
- The various pieces of maintenance information are combined together, compressed, then segmented into the user specified size before exported.

The following explains operation procedures when exporting logs.

## Procedure

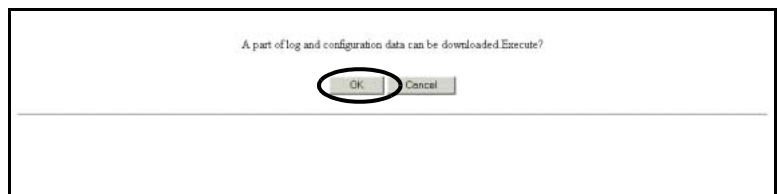
- 1 Click [Export Log] in the [Download] menu.  
→ The [Export Log (Initial)] screen appears.
- 2 Set the following items and click the [Execute] button.
  - Time Range Specification (Valid/None (Entire Log)/ Last 24 hours)
  - Customer Information (With Customer Information / Without Customer Information)
  - PBC log (With PBC Log/Without PBC Log)
  - File size (Segmented file size)



→ The [Export Log (Checking Progress)] screen appears. When the export is completed, size of the log file is checked, and [Export Log (Save)] screen appears.

### Caution

- If the [Execute] button is clicked when the settings are not complete, an error screen appears.
- When checking log file size, when a part of the log is detected as export failure, a check message whether to continue log export appears.  
When clicking the [OK] button, the screen returns to [Export Log], and jumps to [Export Log (Save)] screen.





Note

For [Customer Information], select [Without Customer Information] with the radio button not to export customer information (such as User Name, Box ID, and IP Address that can identify the customer).

**3** Click the [Save] button to save the data.

As a download dialog box is displayed, save the segment to user specified area. The default file name is "logXX.log" (XX is the number of currently saved files (from 01)).



**Caution**



- When the file is segmented, take care that the segments are not overwritten.
- When exporting a log is finished, save the log immediately by clicking the [Save] button.
- When more than one minute has passed after a download dialog box was displayed, saving segment will be interrupted. When you save a log file, complete saving a segment within one minute after clicking the [Save] button.

→ Save completes.

**4** Click the [Next] button, and export the next segment.

Repeat the operation from Step3, for each segment.

**Caution**



- When downloading a log segmented into multiple segments, if more than five minutes have passed before downloading the next segment, you will fail in getting the log. When you complete saving a segment, download the next segment immediately by clicking [Next] button.  
When the file export fails, click the [OK] button to return to the [Menu] screen, and perform Export Log again.
- If the log file reassembled from the segments cannot be opened, the download has failed, so try the download again.
- Be sure to click the [Save] button before clicking the [Next] button. If you click the [Next] button without clicking the [Save] button, the segment that is downloaded to the specified area in the ETERNUS DX400/DX8000 series will be overwritten by the segment that will be exported next. Even if there is only one segment you could not save, execute again from the setting of the log export conditions.
- After you click the [Execute] button on the [Export Log (Initial)] screen, click the [Next] button within five minutes. In addition, after you click the [Next] button, click the next [Next] button within five minutes. If more than five minutes have passed before downloading the next segment, you will fail in getting the log. If you fail in getting the log, execute again from the setting of the log export conditions.
- After clicking the [Next] button, if you click the [Save] button before "Current number of files (aa)" and "Accumulated size (xx)" are updated, the [Save] button operation will be ignored. After clicking the [Next] button, be sure to click the [Save] button, after "Current number of files (aa)" and "Accumulated size (xx)" are updated.



**Note**

In saving the segment, if you click the [Save] button again before clicking the [Next] button, you can save the aa segment displayed on the screen again.

**5** Click the [Menu] button.

→ Returns to the [Menu] screen.

**End of procedure**

### 7.1.3 Set Syslog

---

On this screen, register the external server (Syslog server) to send Syslogs (\*1) in the ETERNUS DX400/DX8000 series.

The ETERNUS DX400/DX8000 series sends the detected event as a Syslog to the Syslog server as needed. Using Syslog server enables "device status monitoring", "configuration monitoring", and "integrated management of logs".

#### ■ Events to be sent as Syslogs

- All the notification target events of REMCS and SNMP
- Configuration settings operation and maintenance information operation such as deleting logs using the ETERNUSmgr or ETERNUS SF Storage Cruiser
- Logging on and logging off from the ETERNUSmgr

\*1: Syslog" indicates the information of the above sending target events detected by the ETERNUS DX400/DX8000 series in this manual.

---

#### Caution



- Set enable or disable Syslog function for each device.
- Note that the ETERNUS DX400/DX8000 series cannot check whether the Syslog is successfully sent to the Syslog server. Even if a communication error occurs between the device and the Syslog server, Syslogs are not sent again. When using the Syslog function (enabling the Syslog function) for the first time, confirm that the Syslog server has successfully received the Syslog of the relevant operation.



#### Note

- Up to two Syslog servers can be registered. Syslogs are sent to both Syslog servers at the same time.
- RFC 3164 (The BSD Syslog Protocol) compatible protocol is used for sending Syslogs.
- Refer to ["C.2 Syslog Message List" \(page 825\)](#) for syslog message list.

---

This section explains how to set the Syslog function.

The following operations can be performed in the [Set Syslog].

- [Enabling the Syslog function](#)
- [Disabling the Syslog function](#)

Procedures for each operation are described below.

### 7.1.3.1 Enabling the Syslog function

This section describes how to enable the Syslog function.

#### Procedure

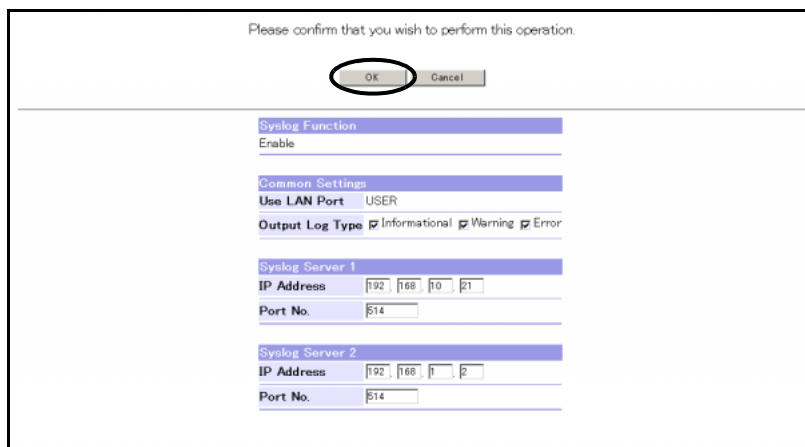
- 1** Click [Set Syslog] in the [Download] menu.  
→ The [Set Syslog (Initial)] screen appears.  
Refer to "[A.35.1 Set Syslog \(Initial\) Screen](#)" ([page 800](#)) for screen details.
- 2** Set the following items and click the [Set] button.
  - Syslog Function  
Enable the Syslog function
  - Common Settings  
Set the "Use LAN Port" and "Output Log Type"
  - Syslog Server 1 (required)  
Specify the information of Syslog Server 1 that sends the Syslogs.
  - Syslog Server 2 (can be omitted)  
Specify the information of Syslog Server 2 that sends the Syslogs.

→ The [Set Syslog (Check)] screen appears.

#### Caution

- This function does not confirm whether the IP Addresses specified for the "IP Address" fields of the Syslog Server 1 and Syslog Server 2 are correct. When using the Syslog function, make sure to confirm that the correct IP Address is specified.
- If the [Set] button is clicked in the following conditions, an error screen appears.
  - Characters other than numerals are specified in the "IP Address" and/or "Port No." fields
  - All the setting items for the IP Address are something other than 0Byte (not specified) or 4Bytes (specified)
  - Either the IP Address or the Port No. has been set
  - Syslog Server 1 is not specified

**3** Click the [OK] button.

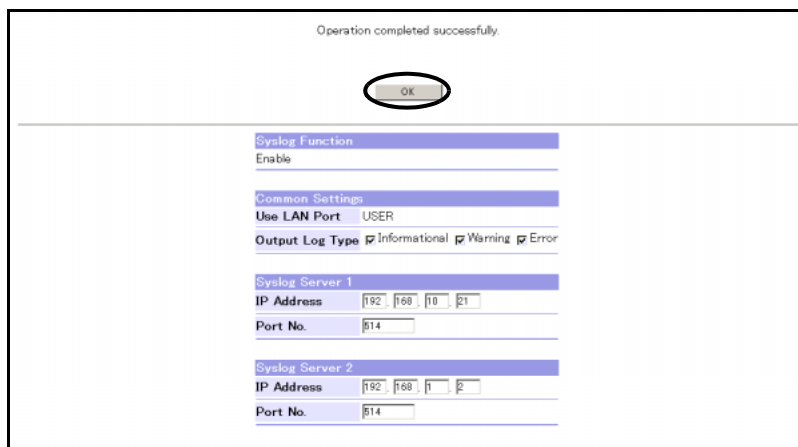


→ The [Set Syslog (Result)] screen appears.

**Caution** 

- The system error screen is displayed when "USER" is selected for the "Use LAN Port", and if the specified IP address of the Syslog server conflicts with the internal IP addresses of the ETERNUS DX400/DX8000 series. Register the IP address and subnet mask of the Syslog server in the "IP Access Settings" of the [Set IP Address for USER Port] function, and execute the [Set Syslog] function again.
- The system error screen is displayed when "REMCS" is selected for the "Use LAN Port", and if the specified IP address of the Syslog server conflicts with the internal IP addresses of the ETERNUS DX400/DX8000 series. Register the IP address and subnet mask of the Syslog server in the "IP Access Settings" of the [Set IP Address for REMCS Port] function, and execute the [Set Syslog] function again.

**4** Click the [OK] button.



Operation completed successfully.

OK

Syslog Function  
Enable

Common Settings  
Use LAN Port USER  
Output Log Type ☒ Informational ☒ Warning ☒ Error

Syslog Server 1  
IP Address 192.168.10.21  
Port No. 514

Syslog Server 2  
IP Address 192.168.1.2  
Port No. 514

→ Returns to the [Menu] screen.

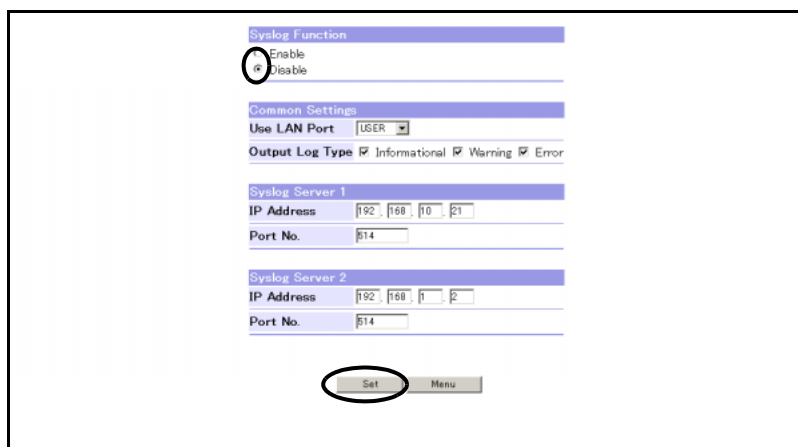
End of procedure

### 7.1.3.2 Disabling the Syslog function

This section describes how to disable the Syslog function.

#### Procedure

- 1** Click [Set Syslog] in the [Download] menu.  
→ The [Set Syslog (Initial)] screen appears.
- 2** Set the following items and click the [Set] button.
  - Syslog Function  
Disable the Syslog function



Syslog Function  
☒ Enable  
☐ Disable

Common Settings  
Use LAN Port USER  
Output Log Type ☒ Informational ☒ Warning ☒ Error

Syslog Server 1  
IP Address 192.168.10.21  
Port No. 514

Syslog Server 2  
IP Address 192.168.1.2  
Port No. 514

Set Menu

→ The [Set Syslog (Check)] screen appears.

## Caution

- Even if the Syslog function is disabled, Syslog settings in the device are maintained.
- If the [Set] button is clicked in the following conditions, an error screen appears. Even when the Syslog function is disabled, input information is checked.
  - Characters other than numerals are specified in the "IP Address" and/or "Port No." fields
  - All the setting items for the IP Address are something other than 0Byte (not specified) or 4Byte (specified)
  - Either the IP Address or the Port No. has been set
  - Syslog Sever 1 is not specified, but Syslog Server 2 is specified

### 3 Click the [OK] button.

Please confirm that you wish to perform this operation.

OK Cancel

Syslog Function  
Disable

Common Settings  
Use LAN Port USER  
Output Log Type ☒ Informational ☒ Warning ☒ Error

Syslog Server 1  
IP Address 192.168.10.21  
Port No. 514

Syslog Server 2  
IP Address 192.168.1.2  
Port No. 514

→ The [Set Syslog (Result)] screen appears.

### 4 Click the [OK] button.

Operation completed successfully.

OK

Syslog Function  
Disable

Common Settings  
Use LAN Port USER  
Output Log Type ☒ Informational ☒ Warning ☒ Error

Syslog Server 1  
IP Address 192.168.10.21  
Port No. 514

Syslog Server 2  
IP Address 192.168.1.2  
Port No. 514

→ Returns to the [Menu] screen.

End of procedure

## 7.1.4 Export Panic Dump

Panic Dump is the memory information output at failure occurrence to analyze the cause of firm-ware abnormality or hardware error. This function exports and saves the memory information of CM/CA in the specified units. Floppy disk, hard disk, and mail transmission are available as file save destinations. Users can select the unit size of Panic Dump depending on the file to be saved.

### Caution

- Up to 4 Panic Dump per CM can be saved in the ETERNUS DX400/ DX8000 series.
- If there are no Panic Dump to be exported in the ETERNUS DX400/ DX8000 series, a message to that effect will be displayed. Click the [OK] button to return to the [Menu] screen.

The following explains operation procedures when exporting panic dumps.

### Procedure

- 1 Click [Export Panic Dump] in the [Download] menu.  
→ The [Export Panic Dump (Initial)] screen appears.
- 2 Set the following items and click the [Execute] button.
  - Panic Dump
  - File Size (Segmented file size)

Module	Date	Panic Code	Data Size(Byte)	Panic Message
	35-01-13 09:30:30	0x00000002		8519680 OS Panic00
	35-01-13 09:30:31	0x00000002		8192 OS Panic01
	35-01-13 09:30:32	0x00000002		1048576 OS Panic02
	35-01-13 09:30:33	0x02000000		35280 OS Panic03
	35-01-13 09:30:34	0x02000000		4096 OS Panic04
	35-01-13 09:30:35	0x02000000		4096 OS Panic05
	35-01-13 09:30:36	0x00000002		1048576 OS Panic06

File Size:

☐ Mail(540KByte)

☐ Floppy disk(1.44MByte)

☐ Hard disk(4.27 MByte)

☐ Hard disk(10 MByte)

→ The [Export Panic Dump (Progress)] screen appears, and when the export is completed, the [Export Panic Dump (Save)] screen appears.

### Caution

When the specified Panic Dump does not exist, exporting file process fails.  
When a message to that effect appears, click the [OK] button to return to the [Menu] screen, and execute [Export Panic Dump] again.

**3** Click the [Save] button and save the data.

As a download dialog box is displayed, save the segment to user specified area.

The default file name is "panicXX\_YYYYYY.log" (XX: Current number of files (01 -), YYYYYY: module where a panic occurs).



**Caution** 

- When the file is segmented, take care that the segments are not overwritten.
- When exporting a Panic Dump is finished, save the Panic Dump immediately by clicking the [Save] button.
- When more than one minute has passed after a download dialog box was displayed, saving a segment will be interrupted. When you save a Panic Dump, save a segment within one minute after clicking the [Save] button.

→ Save completes.

**4** Click the [Next] button, and export next segment.  
Repeat the operation from Step 3, for each segment.

**Caution** 

- When downloading a Panic Dump segmented into multiple segments, if more than five minutes have passed before downloading the next segment, you will fail in getting the Panic Dump. When you complete saving a segment, download the next segment immediately by clicking the [Next] button. When file exporting fails, click the [OK] button to return to the [Menu] screen, and perform Export Panic Dump again.
- If the Panic Dump reassembled from the segments cannot be opened, the download has failed, so try the download again.
- Be sure to click the [Save] button before clicking the [Next] button. If you click the [Next] button without clicking the [Save] button, the segment that is downloaded to the specified area in the ETERNUS DX400/DX8000 series will be overwritten by the segment that will be exported next. Even if there is only one segment you could not save, execute again from the setting of the Panic Dump export conditions.
- After you click the [Execute] button on the [Export Panic Dump (Initial)] screen, click the [Next] button within five minutes. In addition, after you click the [Next] button, click the next [Next] button within five minutes. If more than five minutes have passed before downloading the next segment, you will fail in getting the Panic Dump. If you fail in exporting Panic Dump, execute again from the setting of the Panic Dump export conditions.
- After clicking the [Next] button, if you click the [Save] button before "Current number of files (aa)" and "Accumulated size (xx)" are updated, the [Save] button operation will be ignored. After clicking the [Next] button, be sure to click the [Save] button, after "Current number of files (aa)" and "Accumulated size (xx)" are updated".



**Note**

In saving the segment, if you click the [Save] button again before clicking the [Next] button, you can save the aa segment displayed on the screen again.

**5** Click the [Menu] button.

→ Returns to the [Menu] screen.

**End of procedure**

## Chapter 8 Remote Support Menu

This chapter describes the functions of the Remote Support menu.

The Remote support function is a function that is provided from the ETERNUS DX400/DX8000 series to the remote maintenance target device under the support or management of a maintenance facility in a remote location (Remote support center) via communication line. Hereafter, the remote support center is called REMCS (REMOte Customer Support system).

### 8.1 Display

The following settings can be performed on this screen.

- Display Support Settings
- Communication Log

#### 8.1.1 Display Support Settings

This function enables checking the operation status of remote support maintained with the device.

##### Caution

- Settings in the [Set Remote Support] menu must be completed in advance.
- When logged on using a Resource Domain Administrator account, the [Display Support Settings] menu is not displayed.

The following explains the procedures to display support settings.

##### Procedure

- 1 Click [Display Support Settings] under the Display in the [Remote Support] menu.  
→ The [Display Support Settings (Initial)] screen appears.

**2** Check the support settings.

Clicking the [Refresh] button displays the latest support settings.

Support Information	
Customer Information Settings	Unsetting
Communication Environment Information Settings	Unsetting
Support Status	Suspension
Controller Firmware Version	V01L01-a250
Automatic Download Firmware	ON (Saturday 12:11)
Automatic Controller Firmware Setting for next Power ON	OFF
Automatic Log Sending	OFF
Periodic Log Sending	ON (Saturday 11:39)
Event Information	
Date	Event
2004/05/06 02:24:51	Log sending (manual)
2004/04/05 01:23:50	Log sending (automatic)
2004/03/04 00:22:49	Log sending (period)
2004/02/03 23:21:48	Interruption of downloading controller firmware (V01L01-2030)
2004/01/02 22:20:47	Stop downloading controller firmware (V01L01-1020)
2003/12/01 21:19:46	Start to setting controller firmware (V01L01-c010)
2003/11/30 20:18:45	Finish to setting controller firmware (V01L01-b300)
2003/10/29 19:17:44	Fail to setting controller firmware (V01L01-a290)
2003/09/28 18:16:43	Power ON
2003/08/27 17:15:42	Power OFF

**3** After checking, click the [Menu] button.

→ Returns to the [Menu] screen.

End of procedure

## 8.1.2 Communication Log

This screen displays the communication log when the remote support function is operated between the device and the server.

The communication log includes demands from the device to the server and responses from the server to the device, etc. Only the communication log of the last executed event is displayed.

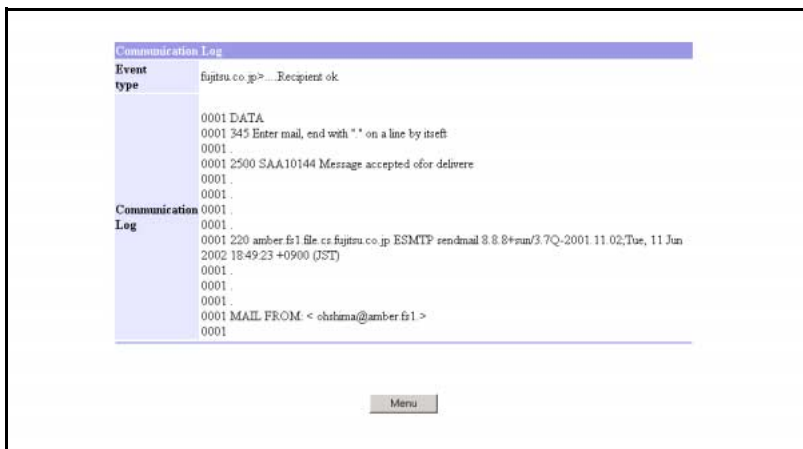
### Caution

- Settings in the [Set Remote Support] menu must be completed in advance.
- When logged on using a Resource Domain Administrator account, the [Communication Log] menu is not displayed.

The following explains procedures to display communication logs.

### Procedure

- 1 Click [Communication Log] under the Display in the [Remote Support] menu.  
→ The [Communication Log (Initial)] screen appears.
- 2 Check the communication log information.



- 3 After checking, click the [Menu] button.  
→ Returns to the [Menu] screen.

End of procedure

## 8.2 Set

The following settings can be performed on this screen.

- Set Remote Support
- Update Customer Information
- Change Communication Environment Information

### 8.2.1 Set Remote Support

This function registers the information related to the user of the device (customer information) and setting information related to the (REMCS) functional operation (communication environment information) to the REMCS center/device.

"REMCS" is a remote maintenance system unique to Fujitsu, and has the following functions.

- Trouble message  
Reports various troubles occurring in the device to REMCS center. Maintenance operators can notice the failure occurrence immediately from this message.
- Information Transfer  
Transfers various information (logs and configuration definition information) to investigate the failure. Time to collect the information can be shortened by this function.
- Download firmware  
Automatically registers the latest firmware registered in the REMCS center into the device. The latest firmware is registered in the device to prevent a given failure occurrence using this function. Also, the firmware can be registered manually.

Also, the remote support setting information file created by using REMCS Environment Setup Assist Tool (REMCS ESAT) can be imported into the device. There are 2 types of remote support setting information files: "User Information File" (Settings of user information) and "Communication Environment Information File" (Settings of communication environment information). Recording the imported remote support setting information file into the device simplifies the input operation for each device by the user.

#### Caution

- Just importing the remote support setting information file to the device does not update the information in the device. To update the information in the device, it is necessary to use the [Set] button.
- Only the common information of the device can be imported using the remote support setting information file. This information does not include the information that should be set for individual devices. When executing [Remote Support], after importing the remote support setting information file, it is necessary to set the information unique to the device.
- When logged on using a Resource Domain Administrator account, the [Set Remote Support] menu is not displayed.



#### Note

The setting status of the communication environment information and support status can be checked from the [Display Support Settings] function.

The following explains the operating procedures of [Set Remote Support].

### Procedure

- 1** Click [Set Remote Support] under the Set in the [Remote Support] menu.  
→ The [Set Remote Support (Initial)] screen appears.  
Refer to "[A.36.1 Set Remote Support \(Initial\) Screen](#)" ([page 802](#)) for screen details.

## 2 Set each item of [Customer Information], [Communication Environment Information], etc. and click the [Set] button.

When browsing/setting from remote support information of another other device, click the [Browse] button and select the [Customer Information File] and [Communication Environment Information File] to browse. After clicking the [Import] button, the information of the browse file is imported.

Customer Information File

Communication Environment Information File

**Customer Information**

This is to send customer information and the storage hardware composition information to our REMCS Center. If the support service environment has been set up, when trouble occurs, data that is required for investigation will be sent to the REMCS Center automatically. This data is only used for customer support, announcement of new products and product improvement. This data will not be offered to third party. In addition, all data will be encrypted before being sent.

After customer information has been sent to our company REMCS Center, personal information which has been saved in the device, will

☐ be deleted  
☐ NOT be deleted

Detailed Settings

Company \*

Department/Division

Address \*

Building

Administrator \*

E-Mail \*

Zip/Postal Code

Phone Number \*

FAX Number

Device Unique Name

Country (ISO3166 A2) \*

Ex: JP, US, etc.

Installation Site Address

Installation Site Address

Building

CE Setting Items

Installation Date

CE E-Mail

Customer Code

**Communication Environment Information**

Connection

Connection

Use LAN Port

Schedule

Scheduled Connection Time \*

Scheduled Connection Period

Specify the Day of the Week

Proxy Server

Proxy Server

Port No.

User Name

Password

Device Mail Address

SMTP Server \*

Port No.

Sender E-Mail \*

SMTP Auth Information

Auth Type

SMTP-AUTH Type

(When using SMTP-AUTH only)

POP Server

Port No.

User Name

Password

REMCS Center

REMCS Center \*

**Detailed Settings Information**

E-Mail server split mode Setting

☐ E-Mail server in split mode

☐ E-Mail server in NON-split mode

Set the device name for HELO/EHLO command

☐ None Specified

☐ Specifying

**Timer Information**

Normally, it is not necessary to set monitoring timer, retry count and retry interval. If necessary, click [Detail] button to change.

SMTP Response Timeout

SMTP Retry Count

SMTP Retry Interval

HTTP Response Timeout

HTTP Retry Count

HTTP Retry Interval

Queuing Time for Sending E-Mail (When using POP Before SMTP-AUTH only)

\* : Required

→ The [Set Remote Support (Setting Check)] screen appears.

---

**Caution** 

In the following cases, an error screen appears.

- When clicking the [Set] button while the required items (items with \* mark) have not been set
- When clicking the [Set] button with wrong values entered
- When clicking the [Import] button while both the [Customer Information File] and [Communication Environment Information File] have not been set.
- When the selected "Customer Information File" or "Communication Environment Information File" is wrong.
- When the "Use LAN Port" is [USER], and the broadcast address of the USER port and the IP address for the proxy server, SMTP server, POP server, or HTTP server are the same.
- When the "Use LAN Port" is [REMCS], and the broadcast address of the REMCS port and the IP address for the proxy server, SMTP server, POP server, or HTTP server are the same.
- When the local host address and the IP address for the proxy server, SMTP server, POP server, or HTTP server are the same.
- When the IP address for the proxy server, SMTP server, POP server, and HTTP server are not Class A, B, or C.

---

 **Note**

- Usually, there is no need to change the monitoring timeout, retry count, and other timer settings. If changing these settings, click the [Detail] button.
  - For the customer information not to be retained in the device, set [be deleted] at the top. The customer information will then be deleted from the device after it has been transferred to the REMCS center.
-

### 3 Click the [OK] button.

Please confirm that you wish to perform this operation.

---

**Customer Information**

This is to send customer information and the storage hardware composition information to our REMCS Center. If the support service environment has been set up, when trouble occurs, data that is required for investigation will be sent to the REMCS Center automatically. This data is only used for customer support, announcement of new products and product improvement. This data will not be offered to third party. In addition, all data will be encrypted before being sent.  
After customer information has been sent to our company REMCS Center, personal information which has been saved in the device, will not be deleted.  
It NOT be deleted.

**Detailed Settings**

Company \*   
 Department/Division   
 Address \*   
 Building   
 Administrator \*   
 E-Mail \*   
 Zip/Postal Code   
 Phone Number \*   
 FAX Number   
 Device Unique Name   
 Country (ISO3166 A2) \*   
 Ex: JP, US, etc.

Installation Site Address  
 Installation Site Address   
 Building

CE Setting Items  
 Installation Date   
 CE E-Mail   
 Customer Code

---

**Communication Environment Information**

Connection  
 Connection   
 Use LAN Port

Service  
 Scheduled Connection Time \*  :   
 Scheduled Connection Period   
 Specify the Day of the Week

Proxy Server  
 Proxy Server  Port No.   
 User Name   
 Password

Device Mail Address  
 SMTP Server \*  Port No.   
 Sender E-Mail \*

SMTP Auth Information  
 Auth Type   
 SMTP-AUTH Type   
 (When using SMTP-AUTH only)  
 POP Server  Port No.   
 (When using POP Before SMTP-AUTH only)  
 User Name   
 Password

REMCS Center  
 REMCS Center \*

---

**Detailed Settings Information**

E-Mail sent in split mode Setting  
☐ E-Mail sent in split mode  KB (4-640064)  
☐ E-Mail sent in NON split mode

Set the device name for HELO/EHLO command  
☐ None Specified  
☒ Specifying

---

**Timer Information**

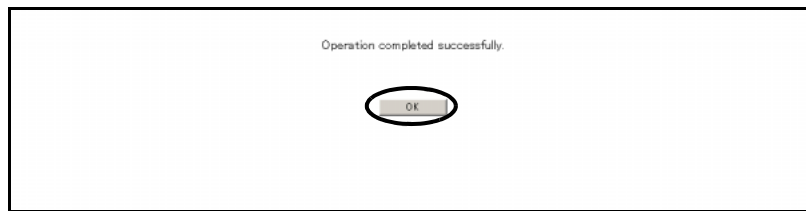
Normally, it is not necessary to set monitoring timer, retry count and retry interval.

SMTP Response Timeout  sec 1-3600(60)  
 SMTP Retry Count  1-255(5)  
 SMTP Retry Interval  sec 1-3600(30)  
 HTTP Response Timeout  sec 1-3600(30)  
 HTTP Retry Count  1-255(5)  
 HTTP Retry Interval  sec 1-3600(5)  
 Queuing Time for Sending E-Mail (When using POP Before SMTP-AUTH only)  mill-sec 1-3600(1000)

\* Required

→ The [Set Remote Support (Progress)] screen appears. When the process is complete, the [Set Remote Support (Setting Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

## 8.2.2 Update Customer Information

The customer information related to the device and the REMCS center device is updated on this screen.

Also, the remote support setting information file (customer information file) created by using REMCS ESAT can be imported into the device. Recording the imported remote support setting information file (customer information file) into the device simplifies the input operation for each device by the user.

**Caution**

- A remote support target device should be set up by the [Set Remote Support] function before the start of remote support. Refer to ["A.36.1 Set Remote Support \(Initial\) Screen" \(page 802\)](#) for details about [Set Remote Support] function.
- When logged on using a Resource Domain Administrator account, the [Update Customer Information] menu is not displayed.

The following explains the operating procedures to update customer information.

### Procedure

- 1** Click [Update Customer Information] under the Set in the [Remote Support] menu.

→ The [Update Customer Information (Initial)] screen appears.

Refer to "Customer information" in ["A.36.1 Set Remote Support \(Initial\) Screen" \(page 802\)](#) for screen details.

**Caution**

- If the settings has not been performed using the [Set Remote Support] function, this function cannot be used.
- If the customer information has not been saved via the [Set Remote Support] menu or [Update Customer Information] menu, it will need to be input again.

**2** Set each item of [Customer Information], and click the [Set] button.

When browsing/setting from remote support information of another device, click the [Browse] button and select the [Customer Information File] to browse. After clicking the [Import] button, the information of the browse file is imported.

→ The [Update Customer Information (Setting Check)] screen appears.

**Caution**

In the following cases, an error screen appears.

- When clicking the [Set] button while the required items (items with \* mark) have not been set
- When clicking the [Set] button with wrong values entered
- When clicking the [Import] button when [Customer Information File] has not been set
- When the selected [Customer Information File] is wrong

**Note**

For the customer information not to be retained in the device, set [be deleted] at the top. The customer information will then be deleted from the device after it has been transferred to the REMCS center.

**3** Click the [OK] button.

Please confirm that you wish to perform this operation.

---

**Customer Information**

This is to send customer information and the storage hardware composition information to our REMCS Center. If the support service environment has been set up, when trouble occurs, data that is required for investigation will be sent to the REMCS Center automatically. This data is only used for customer support, announcement of new products and product improvement. This data will not be offered to third party. In addition, all data will be encrypted before being sent.

After customer information has been sent to our company REMCS Center, personal information which has been saved in the device, will  
Ⓐ be deleted  
Ⓒ NOT be deleted

---

Detailed Settings

Company *	Fujitsu
Department/Division	Storage System
Address *	Kawasaki, Kanagawa 211-8500 Japan
Building	Main Building
Administrator *	admin
E-Mail *	admin@mailserver.co.jp
Zip/Postal Code	211-8500
Phone Number *	044-755-3144
FAX Number	044-755-3344
Device Unique Name	unique
Country (ISO3166 A2) *	US

---

Installation Site Address

Installation Site Address	Tokyo Japan
Building	Data Building

---

CE Setting Items

Installation Date	2007 Year 10 Month
CE E-Mail	admin@mailserver.co.jp
Customer Code	45

\* : Required

→ The [Update Customer Information (Progress)] screen appears. When the process is complete, the [Update Customer Information (Setting Result)] screen appears.

**4** Click the [OK] button.

Operation completed successfully.

→ Returns to the [Menu] screen.

End of procedure

### 8.2.3 Change Communication Environment Information

---

This function re-sets the environment setting information related to the REMCS functional operation.

Also, remote support setting information file (Settings of communication environment information) created by using REMCS ESAT can be imported into the device. Recording the imported remote support setting information file (Settings of communication environment information) into the device simplifies the input operation for each device by the user.

---

**Caution**

- A remote support target device should be set up by the [Set Remote Support] function before the start of remote support. Refer to ["A.36 Set Remote Support" \(page 802\)](#) for details about [Set Remote Support] function.
  - When logged on using a Resource Domain Administrator account, the [Change Communication Environment Information] menu is not displayed.
- 

The following explains the operating procedures of changing communication environment information.

#### Procedure

- 1 Click [Change Communication Environment Information] under the Set in the [Remote Support] menu.
  - The [Change Communication Environment Information (Initial)] screen appears. Refer to "Communication Environment information", "Detailed Settings Information", and "Timer Information" in ["A.36 Set Remote Support" \(page 802\)](#) for screen details.

---

**Caution**

If the settings has not been performed using the [Set Remote Support] function, this function cannot be used.

---

## 2 Set each item of [Communication Environment Information], and click the [Set] button.

When browsing/setting from remote support information of another device, click the [Browse] button and select the [Communication Environment Information File] to browse. After clicking the [Import] button, the information of the browse file is imported.

Communication Environment Information File

**Communication Environment Information**

Connection  
 Connection   
 Use LAN Port

Service  
 Scheduled Connection Time \*   
 Scheduled Connection Period   
 Specify the Day of the Week

Proxy Server  
 Proxy Server  Port No.   
 User Name   
 Password

Device Mail Address  
 SMTP Server \*  Port No.   
 Sender E-Mail \*

SMTP Auth Information  
 Auth Type   
 SMTP-AUTH Type (When using SMTP-AUTH only)   
 POP Server (When using POP Before SMTP-AUTH only)  Port No.   
 User Name   
 Password

REMCS Center  
 REMCS Center \*

**Detailed Settings Information**

E-Mail sent in split mode Setting  
☐ E-Mail sent in split mode   
☒ E-Mail sent in NON split mode

Set the device name for HELO/EHLO command  
☐ None Specified  
☒ Specifying

**Timer Information**  
 Normally, it is not necessary to set monitoring timer, retry count and retry interval. If necessary, click [Detail] button to change.

SMTP Response Timeout   
 SMTP Retry Count   
 SMTP Retry Interval   
 HTTP Response Timeout   
 HTTP Retry Count   
 HTTP Retry Interval   
 Queuing Time for Sending E-Mail (When using POP Before SMTP-AUTH only)

\* : Required

→ The [Change Communication Environment Information (Setting Check)] screen appears.

---

**Caution** 

In the following cases, an error screen appears.

- When clicking the [Set] button while the required items (items with \* mark) have not been set
- When clicking the [Set] button with wrong values entered
- When clicking the [Import] button before the [Communication Environment Information File] has been set
- When the selected [Communication Environmental Information File] is wrong
- When the "Use LAN Port" is [USER], and the broadcast address of the USER port and the IP address for the proxy server, SMTP server, POP server, or HTTP server are the same.
- When the "Use LAN Port" is [REMCS], and the broadcast address of the REMCS port and the IP address for the proxy server, SMTP server, POP server, or HTTP server are the same.
- When the local host address and the IP address for the proxy server, SMTP server, POP server, or HTTP server are the same.
- When the IP address for the proxy server, SMTP server, POP server, and HTTP server are not Class A, B, or C.

---

 **Note**

Usually, there is no need to change the monitoring timeout, retry count, and other timer settings. If changing these settings, click the [Detail] button.

---

**3** Click the [OK] button.

Please confirm that you wish to perform this operation.

---

**Communication Environment Information**

Connection  
Connection P-P Connection (VPN)  
Use LAN Port REMCS

Service  
Scheduled Connection Time \* 8:00  
Scheduled Connection Period Once a Week  
Specify the Day of the Week Friday

Proxy Server  
Proxy Server proxyserver.co.jp Port No. 8080  
User Name proxyuser  
Password \*\*\*\*\*

Device Mail Address  
SMTP Server \* smtp.mailserver.co.jp Port No. 25  
Sender E-Mail \* deviceaddress@mailserver.co.jp

SMTP Auth Information  
Auth Type SMTP-AUTH  
SMTP-AUTH Type (When using SMTP-AUTH only) CRAM-MD5  
POP Server (When using POP Before SMTP-AUTH only) pop3.mailserver.co.jp Port No. 25  
User Name pop3user  
Password \*\*\*\*\*

REMCs Center  
REMCs Center \* OSC

---

**Detailed Settings Information**

E-Mail sent in split mode Setting  
E-Mail sent in split mode 220 KB 64-6400(64)  
E-Mail sent in NON split mode

Set the device name for HELO/EHLO command  
None Specified  
Specifying mailserver.co.jp

---

**Timer Information**

Normally, it is not necessary to set monitoring timer, retry count and retry interval.

SMTP Response Timeout 60 sec 1-3600(60)  
SMTP Retry Count 1-255(5)  
SMTP Retry Interval 60 sec 1-3600(30)  
HTTP Response Timeout 60 sec 1-3600(30)  
HTTP Retry Count 1-255(5)  
HTTP Retry Interval 6 sec 1-3600(5)  
Queuing Time for Sending E-Mail (When using POP Before SMTP-AUTH only) 1000 milli-sec 1-3600(1000)

\* : Required

→ The [Change Communication Environment Information (Progress)] screen appears.  
When the process is complete, the [Change Communication Environment Information (Setting Result)] screen appears.

**4** Click the [OK] button.

Operation completed successfully.

→ Returns to the [Menu] screen.

End of procedure

## 8.3 Operation

The following settings can be performed using this menu.

- Sending Log
- Pause/Restart Remote Support

### 8.3.1 Sending Log

This function sends an internal log of the device to the REMCS center. There are two methods to send logs; [Automatic Sending] to send logs automatically by the device, and [Manual Sending] to instruct log sending directly from the ETERNUSmgr. Setting valid/invalid the Automatic Sending or sending log from the ETERNUSmgr are executed by this function.

#### Caution

- Settings in the [Set Remote Support] menu must be completed in advance.
- When logged on using a Resource Domain Administrator account, the [Sending Log] menu is not displayed.

The following explains setting procedures when sending logs.  
The following settings are available.

- [Automatic Sending Log](#)
- [Manual Sending Log](#)

Procedures for each operation are described below.

#### 8.3.1.1 Automatic Sending Log

This section explains the setting procedures of automatic sending logs.



#### Note

When sending PBC logs, click the [Send log now] link in the [Manual] field.  
Even if Automatic Sending mode is set to [Valid], PBC log will not be sent.

#### Procedure

- 1 Click [Sending Log] under the Operation in the [Remote Support] menu.  
→ The [Sending Log (Initial)] screen appears.

**2** After setting the following items, click the [Set] button.

- Sending method  
Set Valid/Invalid of [Automatic Sending Log].  
If [Automatic Sending Log] is set to [Valid], the device internal log is automatically sent to the REMCS center when an error occurs in the device.
- Periodic Sending Log  
Set Valid/Invalid of [Periodic Sending Log].  
When this is set to [Valid], an internal log of the device is automatically sent to the REMCS center, according to the periodic sending schedule.  
If [Valid] is selected, it is also necessary to set the time and cycle in [Periodic Sending Log].

→ The [Sending Log (Check Setting)] screen appears.

**Caution**

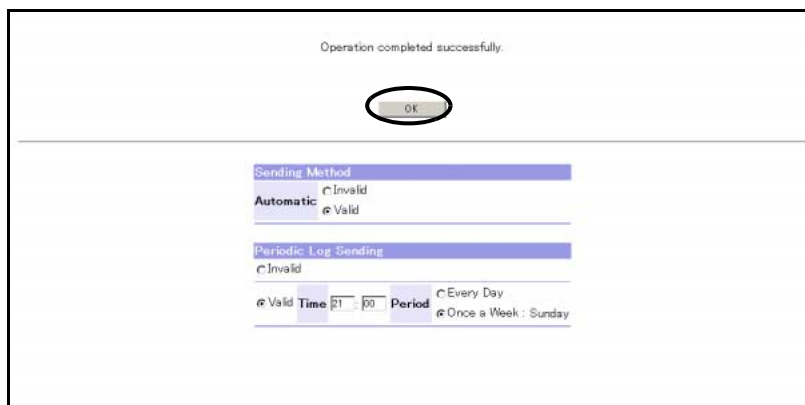


If time is not input or the input value is wrong, an error screen appears.

**3** Click the [OK] button to execute the process.

→ The [Sending Log (Setting Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

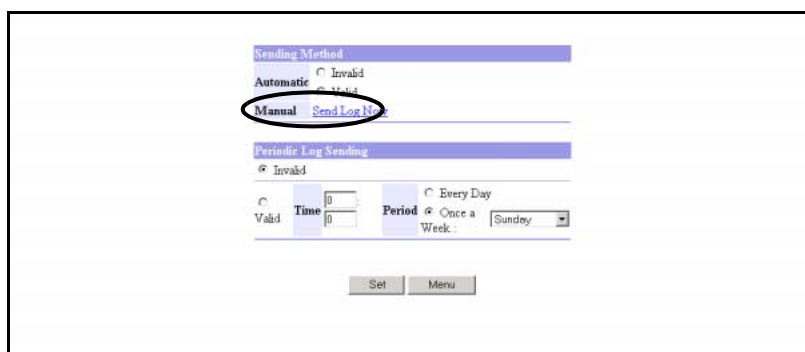
End of procedure

### 8.3.1.2 Manual Sending Log

This section explains the procedures of manual sending logs.

#### Procedure

- 1** Click [Sending Log] under the Operation in the [Remote Support] menu.  
→ The [Sending Log (Initial)] screen appears.
- 2** Click the [Send log now] link in the [Manual] field in [Sending method].



→ The [Sending Log (Manual Sending Initial)] screen appears.

**3** After setting the following items, click the [Execute] button.

- Incident number  
Enter an incident number to be added to the log which will be sent.
- Time Range Specification  
Set the Time Range Specification using the None or Range radio button. If [Range] is selected, input the start/end time for the exported logs.
- Export PBC Log  
Select either the With or Without radio button for PBC logs.

Manual Log Sending

Incident No.

Time Range Specification

☒ None  
☐ Range

From: YYYY:  MM:  DD:  hh:  mm:  ss:   
To: YYYY:  MM:  DD:  hh:  mm:  ss:

PBC Log

☒ With  
☐ Without

→ The [Sending Log (Manual Sending Check)] screen appears.

**Caution**

In the following cases, an error screen appears when the [Execute] button is clicked:

- When no incident number is entered, or the entered value is wrong.
- When [Range] is selected, and no start time or end time is entered.
- When [Range] is selected, and entered other than numeric characters.
- When [Range] is selected, and the value for start time or end time is out of range.
- When [Range] is selected, and the start time is later than the end time.

**4** Click the [OK] button to execute the process.

Please confirm that you wish to perform this operation

Manual Log Sending

Incident No.

Time Range Specification

☒ None  
☐ Range

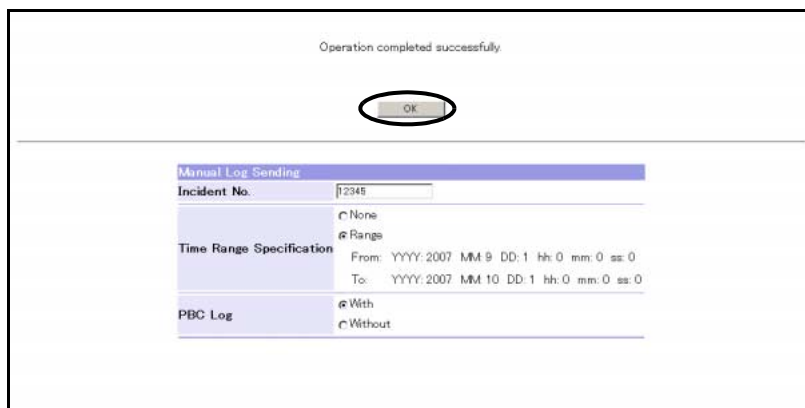
From: YYYY: 2007 MM: 9 DD: 1 hh: 0 mm: 0 ss: 0  
To: YYYY: 2007 MM: 10 DD: 1 hh: 0 mm: 0 ss: 0

PBC Log

☒ With  
☐ Without

→ The [Sending Log (Manual Sending Progress)] screen appears. When the process is successfully completed, the [Sending Log (Manual Sending Result)] screen appears.

**5** Click the [OK] button.



→ Returns to the [Menu] screen.

**End of procedure**

## 8.3.2 Pause/Restart Remote Support

The REMCS center is notified of "pause/restart remote support" using this function. When suspending the support function, the support status of the device is changed from [Under Remote Support] to [The Remote Support Function is Suspended]. When [The Remote Support Function is Suspended], all remote support functions, such as automatic notification of device errors to the REMCS center, are suspended. This function is used for long time suspension, for example; to relocate the system.

**Caution**

- Settings by the [Set Remote Support] function in advance is necessary.
- When logged on using a Resource Domain Administrator account, the [Pause/Restart Remote Support] menu is not displayed.



**Note**

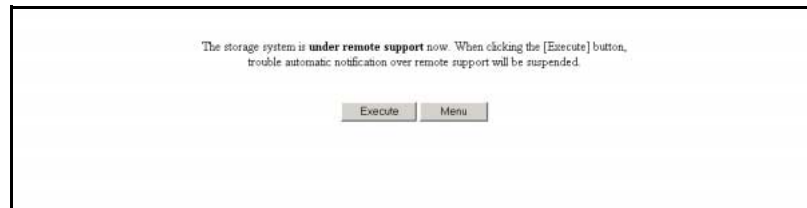
When the support status is [Under Maintenance], this function cannot be used.

The following explains the setting procedures of [Pause/Restart Remote Support].

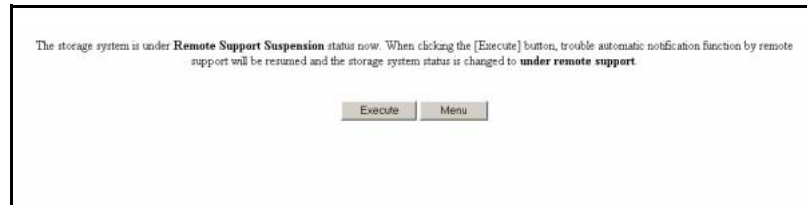
### Procedure

- 1** Click [Pause/Restart Remote Support] under the Operation in the [Remote Support] menu.
  - The [Pause/Restart Remote Support (Initial)] screen appears.  
The displayed screen differs depending on the operation status of the remote support.

- For [Under Remote Support]



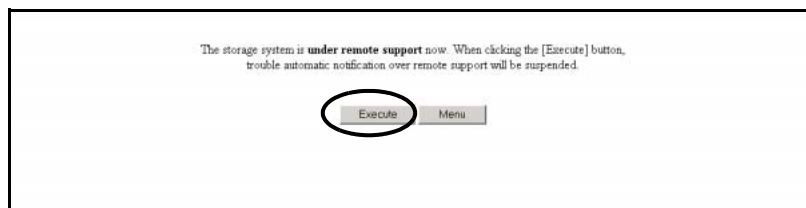
- For [Remote Support Temporarily Suspended]



**Caution**

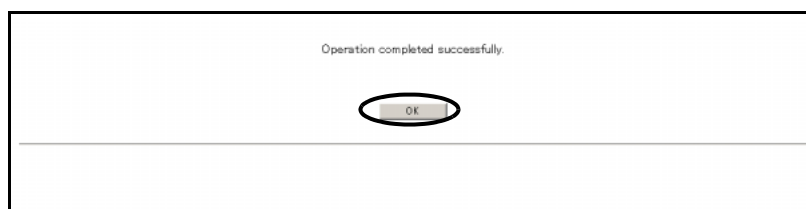
- If the settings has not been performed using the [Set Remote Support] function, this function cannot be used.
- When the support status is [Under Maintenance], this function cannot be used.

- 2** When the support status is [Under Maintenance], this function cannot be used. Click the [Execute] button to execute the process.



The status is changed from [Under Remote Support] to [The Remote Support is Suspended], or from [The Remote Support is Suspended] to [Under Remote Support].  
→ The [Pause/Restart Remote Support (Progress)] screen appears. When the process is complete successfully, the [Pause/Restart Remote Support (Result)] screen appears.

- 3** Click the [OK] button.



→ Returns to the [Menu] screen

End of procedure

## Chapter 9 User Accounts Menu

This chapter describes the functions of the User Accounts Menu.

### 9.1 Account

#### 9.1.1 Set User Account

The [Set User Account] function is used for registering a User Name and Password. This function gives roles to the user account. The functions that are displayed in the menu and the Resource Domain that can be managed vary depending on the role given to the user account when logged on. Up to 32 user accounts can be registered.

**Caution**

- The system administrator account (root) cannot be deleted.
- The functions that are displayed in the menu vary depending on the role given to the user account when logged on. Functions that are not allocated for the role are not displayed. Only system administrator functions can be allocated to the role.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Resource Domain that can be managed differ depending on the role given to the current user account. The resources that are managed by each Resource Domain are listed below.
  - RAID Group
  - Thin Provisioning Pool
  - Logical Volume (Open, SDV, and TPV)
  - Host WWN
  - iSCSI Host
  - Affinity Group
  - Host Response
  - Eco-mode Schedule

- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, displayed user accounts differ depending on the current user account.
  - When logged on using a Total Administrator account, all the user accounts are displayed.
  - When logged on using a Resource Domain Administrator account, only the user accounts in which the relevant Resource Domain is specified are displayed. For user accounts in which other Resource Domains are specified, "\*\*\*\*\*" is displayed.

---

 Note

- The [Set User Account] function can give multiple roles to a user account. However, only one role can be used at once when logged on. If logged on using the user account with multiple roles, input user name and password, and select the role to be used.
- The default role [Administrator] is given to the system administrator (root) account as an initial status. If the default role [Administrator] is deleted from the system administrator (root) account, the default role [account] is given automatically. Note that roles given to the system administrator (root) account are not displayed on the screen.
- The [Set User Account] function can give the default roles and registered roles using the [Set Role] function to the user account. Refer to ["Default roles and supported categories" \(page 813\)](#) for details about functions available for default roles. At least one Role must be given to the user account.
- When changing the Role Name and functions allocated to the role, use the [Set Role] function. Note that the default roles cannot be changed.
- The maintenance account (f.ce) has the default role "Maintenance (build-in)".
- When logged on using a Resource Domain Administrator account, the following restrictions occur.
  - The system administrator account (root) is not displayed.
  - Only the roles, in which the relevant Resource Domain is specified, can be given to a user account. Note that default roles cannot be given to a user account.

---

The following explains the operating procedures for setting a user account.

The following settings are available.

- [Register User Account](#)
- [Delete User Account](#)
- [Change User Account Password](#)
- [Change User Account Role](#)

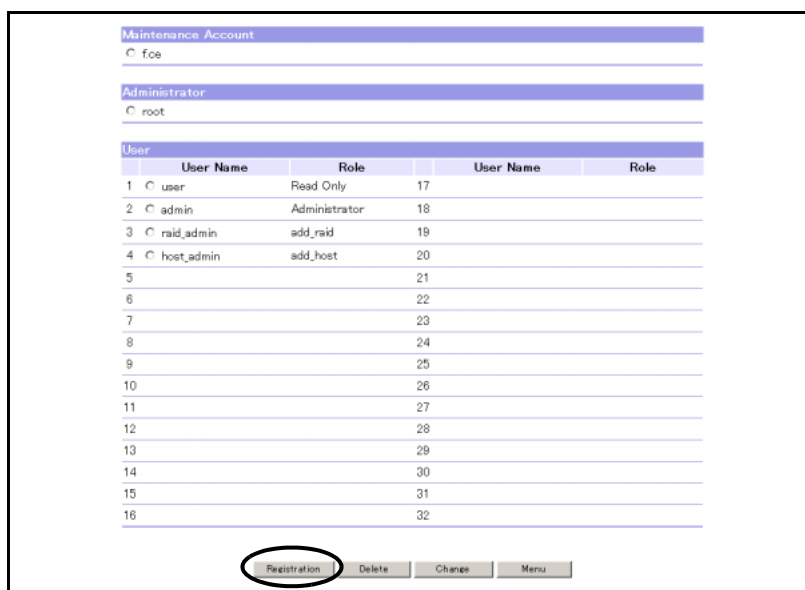
Procedures for each operation are described below.

### 9.1.1.1 Register User Account

This section explains the [Register User Account] operating procedures.

#### Procedure

- 1 Click [Set User Account] in the [User Accounts] menu.  
→ The [Set User Account (Initial)] screen appears.
- 2 Click the [Registration] button.



The screenshot shows the 'Maintenance Account' and 'Administrator' sections at the top. Below them is a table with columns 'User Name' and 'Role'. The table lists users 1 through 16, with roles 'Read Only', 'Administrator', 'add\_raid', and 'add\_host'. At the bottom of the table, there are four buttons: 'Registration', 'Delete', 'Change', and 'Menu'. The 'Registration' button is circled in red.

	User Name	Role		User Name	Role
1	user	Read Only	17		
2	admin	Administrator	18		
3	raid_admin	add_raid	19		
4	host_admin	add_host	20		
5			21		
6			22		
7			23		
8			24		
9			25		
10			26		
11			27		
12			28		
13			29		
14			30		
15			31		
16			32		


→ The [Set User Account (Registration)] screen appears.  
Refer to ["A.37.1 Set User Account \(Registration\) Screen" \(page 808\)](#) for screen details.

#### Caution

When 32 users have already been registered, the [Registration] button is not displayed.

**3** Input the following items and click the [Execute] button.

- User Name
- Password
- Re-enter password
- Role



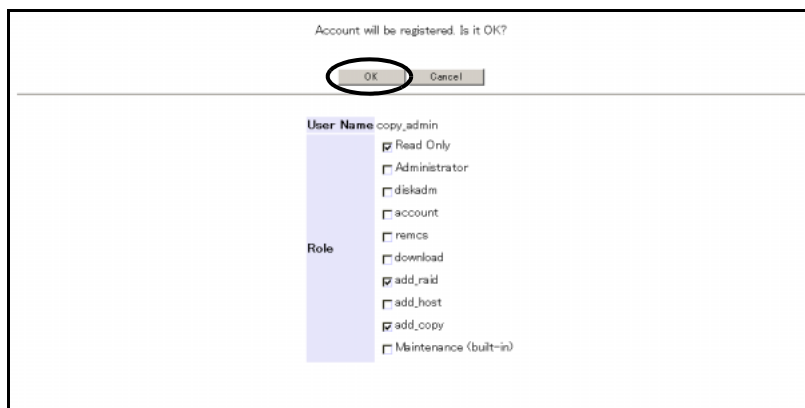
→ The [Set User Account (Registration Check)] screen appears.

**Caution**



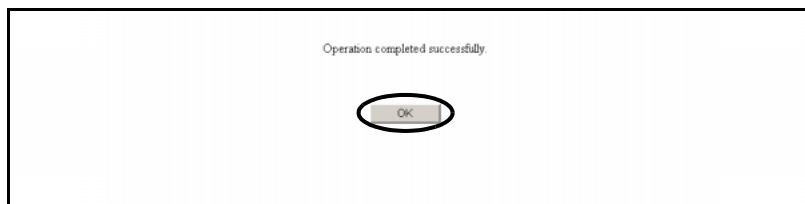
- When logged on using a Resource Domain Administrator account, only the roles, in which the relevant Resource Domain is specified, are displayed.
- When logged on using a Total Administrator account, all the default roles and roles, in which Resource Domains that are registered in the device are specified, are displayed. Note that the roles to be given to a user account must be assigned to the same Resource Domain.
- When registering a user account, an error screen appears in the following cases.
  - When the User Name is not entered
  - When the User Name contains anything other than alphanumeric characters or "!", "-", "\_", "." symbols
  - When the User Name is less than 4 or more than 16 characters long
  - When the User Name is already registered
  - When the Password is not entered
  - When the Password contains anything other than alphanumeric characters or "!", "-", "\_", "." symbols
  - The password is less than 4 or more than 32 characters long
  - When the "Re-enter password" field is blank
  - When the values entered in the "Password" and "Re-enter password" fields do not match
  - When no roles are selected
  - When setting multiple roles for a user account, and selecting roles that are assigned to different Resource Domains

- 4** Click the [OK] button to register.



→ The [Set User Account (Registration Result)] screen appears.

- 5** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 9.1.1.2 Delete User Account

This section explains the [Delete User Account] operating procedures.

#### Procedure

- 1** Click [Set User Account] in the [User Accounts] menu.  
→ The [Set User Account (Initial)] screen appears.

**2** Select the user to delete, and click the [Delete] button.

The screenshot shows the 'Maintenance Account' and 'Administrator' sections. Below them is a table of users. The 'Delete' button at the bottom is circled.

User Name	Role	User Name	Role
user	Read Only	17	
admin	Administrator	18	
raid_admin	add_raid	19	
host_admin	add_host	20	
copy_admin	Read Only , add_raid , add_copy	21	
6		22	
7		23	
8		24	
9		25	
10		26	
11		27	
12		28	
13		29	
14		30	
15		31	
16		32	

Buttons: Registration, Delete, Change, Menu

→ The [Set User Account (Deletion Check)] screen appears.

**Caution**

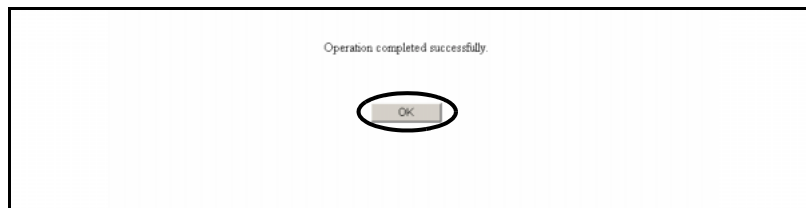
- When no user account is registered, the [Delete] button will not be displayed.
- When logged on using a Resource Domain Administrator account, a user account, of which roles are assigned to the relevant Resource Domain, can be deleted.
- When deleting a user account, an error screen appears in the following cases.
  - When the system administrator account (root) is selected
  - When the system administrator account (user account with a role to which the [User Account] menu is allocated) that is currently logged on the system is selected

**3** Click the [OK] button to delete.

The dialog box contains the text 'Account will be deleted. Is it OK?' and two buttons: 'OK' and 'Cancel'. The 'OK' button is circled. Below the buttons, it says 'User Name : user'.

→ The [Set User Account (Deletion Result)] screen appears.

- 4 Click the [OK] button.



→ Returns to the [Menu] screen.

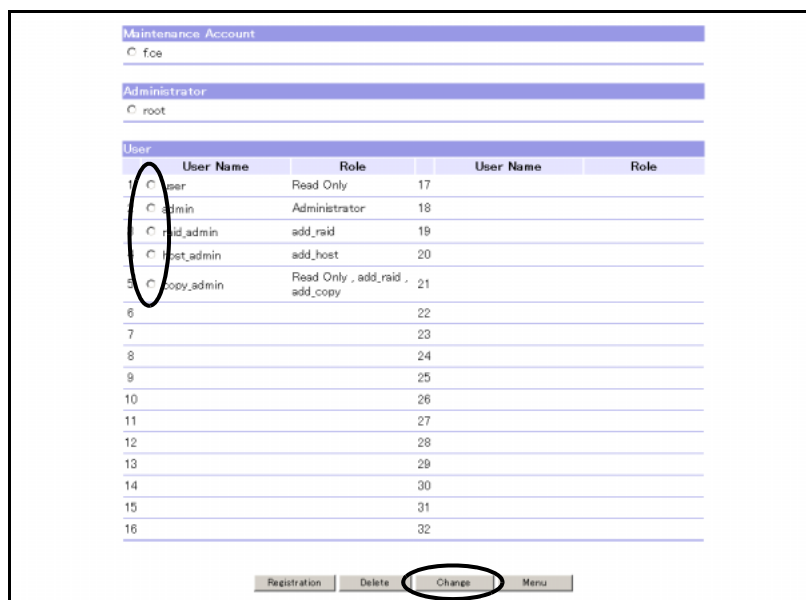
End of procedure

### 9.1.1.3 Change User Account Password

This section explains the [Change User Account Password] procedures.

#### Procedure

- 1 Click [Set User Account] in the [User Accounts] menu.  
 → The [Set User Account (Initial)] screen appears.
- 2 Select the user whose password will be changed, and click the [Change] button.



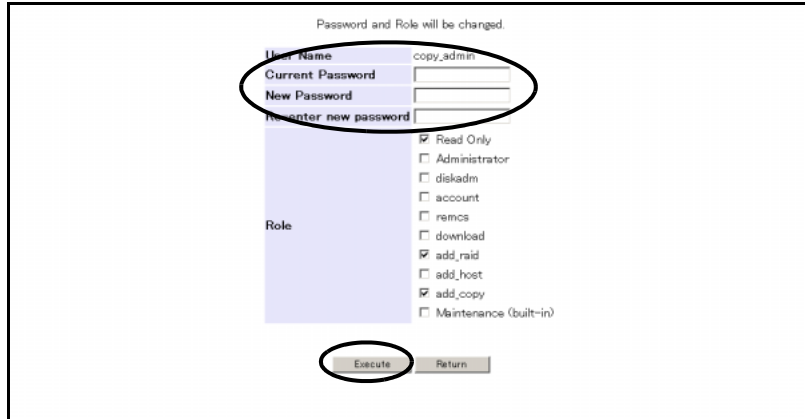
→ The [Set User Account (Password Change)] screen appears.

#### Caution

When logged on using a Resource Domain Administrator account, the password of a user account, of which roles are assigned to the relevant Resource Domain, can be changed.

**3** Set the items below and click the [Execute] button.

- Current Password
- New Password
- Re-enter new password



→ The [Set User Account (Password Change Result)] screen appears.

**Caution**

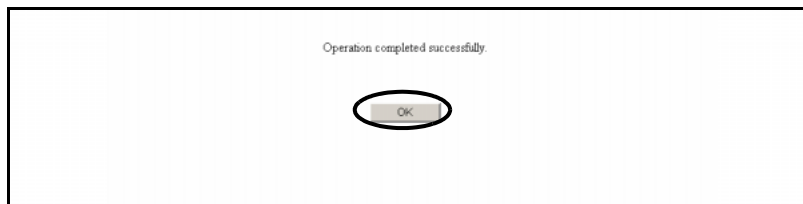
When changing the user account password, an error screen appears in the following cases.

- When the current password is not entered
- When the current password differs from the registered password
- When the new password is not entered
- When the new password contains anything other than alphanumeric characters or "!", "-", "\_", "." symbols
- When the new password is less than 4 or more than 32 characters long
- When the "Re-enter password" field is blank
- When the values entered in the "Password" and "Re-enter password" fields do not match

**Note**

Roles that are given to a user account can be changed when changing the password. When changing the role, select the role to be assigned.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

**End of procedure**

### 9.1.1.4 Change User Account Role

This section explains [Change User Account Role] procedures.

#### Procedure

- 1** Click [Set User Account] in the [User Account] menu.  
 → The [Set User Account (Initial)] screen appears.
- 2** Select the user whose role will be changed, and click the [Change] button.

Maintenance Account			
fce			
Administrator			
root			
User			
	User Name	Role	
1	copy	Read Only	17
2	admin	Administrator	18
3	add_admin	add RAID	19
4	test_admin	add host	20
5	copy_admin	Read Only, add RAID, add copy	21
6			22
7			23
8			24
9			25
10			26
11			27
12			28
13			29
14			30
15			31
16			32

Registration Delete **Change** Menu

→ The [Set User Account (Change Role)] screen appears.

#### Caution

When logged on using a Resource Domain Administrator account, the roles of a user account, of which roles are assigned to the relevant Resource Domain, can be changed.

- 3** Select the role, and click the [Execute] button.

Password and Role will be changed.

User Name: copy\_admin

Current Password:

New Password:

Re-enter new password:

Role:

- ☒ Read Only
- ☐ Administrator
- ☐ testadm
- ☐ account
- ☐ emics
- ☐ download
- ☒ add RAID
- ☐ add host
- ☒ add copy
- ☐ Maintenance (built-in)

**Execute** Return

→ The [Set User Account (Role Change Result)] screen appears.

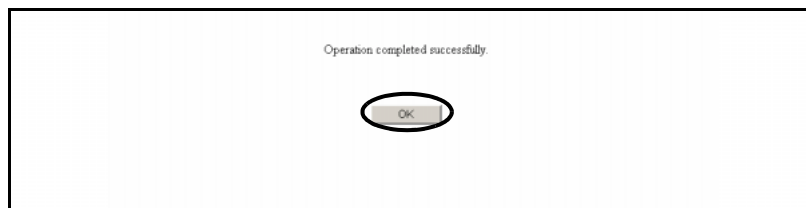
## Caution

- Entering a password is not necessary when only changing roles.
- When logged on using a Resource Domain Administrator account, only the roles that are assigned to the relevant Resource Domain are displayed.
- When logged on using a Total Administrator account, all the default roles and roles, in which Resource Domains that are registered in the device are specified, are displayed. Note that the roles to be given to a user account must be assigned to the same Resource Domain.
- If the [Execute] button is clicked in the following conditions, an error screen appears.
  - When no roles are selected
  - When setting multiple roles for a user account, and selecting roles that are assigned to different Resource Domains

## Note

A password can be changed at the same time a role is changed. When changing the password, enter the [Current Password], [New Password], and [Re-enter new password]. Refer to the notes on the Step 3 of ["9.1.1.3 Change User Account Password" \(page 651\)](#) for input check when changing a password.

## 4 Click the [OK] button.



→ Returns to the [Menu] screen.

**End of procedure**

## 9.1.2 Set Role

---

This function sets the role to be added for the user account. Allocate usable functions and operation target Resource Domains to the role. Up to 24 roles can be registered in the ETERNUS DX400/DX8000 series.

### Caution

- The [Set Role] function can allocate only system administrator functions (\*1) to the role.
  - \*1: System administrator functions are the functions that can be used when logged on with a system administrator (root) account.
- Roles (categories) for the user account which is currently accessing the ETERNUSmgr can be changed. However, the changed role is reflected at the next login.
- The roles that have already been allocated to a user account cannot change the Resource Domain.
- The roles that have already been allocated to a user account cannot be deleted.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Resource Domains that can be set for roles differ depending on the current user account.
  - When logged on using a Total Administrator account, the Resource Domain to be set for the role can be selected from all the Resource Domains including "All Resources".
  - When logged on using a Resource Domain Administrator account, a Resource Domain to be set for the role cannot be selected, and the Resource Domain of the current user account is set for the role.

### Note

- There are six default roles besides roles specified in this function. Default roles cannot be changed. Refer to ["Default roles and supported categories" \(page 813\)](#) for details about functions available for default roles. Note that the default roles cannot be used when logged on using a Resource Domain Administrator account.
- Use the [Set User Account] function to add roles for a user account.

This section explains role setting procedures.  
The following settings are available.

- [Register Role](#)
- [Change Role](#)
- [Delete Role](#)

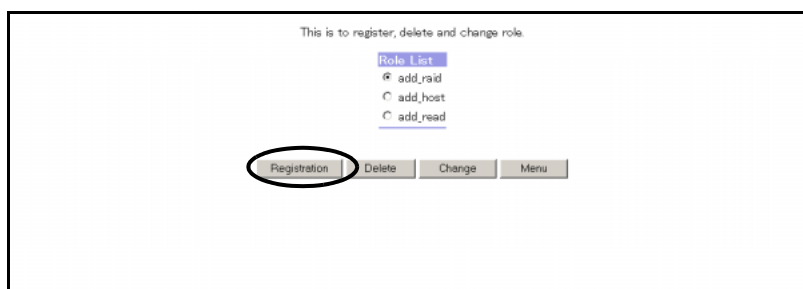
Procedures for each operation are described below.

### 9.1.2.1 Register Role

This section explains procedures for registering roles.

#### Procedure

- 1 Click [Set Role] in the [User Account] menu.  
→ The [Set Role (Initial)] screen appears.
- 2 Click the [Registration] button.



→ The [Set Role (Register Role)] screen appears.

Refer to ["A.38.1 Set Role \(Register Role/Change Role\) Screen" \(page 810\)](#) for screen details.

#### Caution



When the maximum number of roles have already been registered in the device, the [Registration] button is not displayed. Delete the unnecessary roles and perform registration.

- 3** Input a Role Name in the text box, and select the Resource Domain (\*1). After selecting the functions to be allowed for the role (multiple selections can be made), click the [Execute] button.

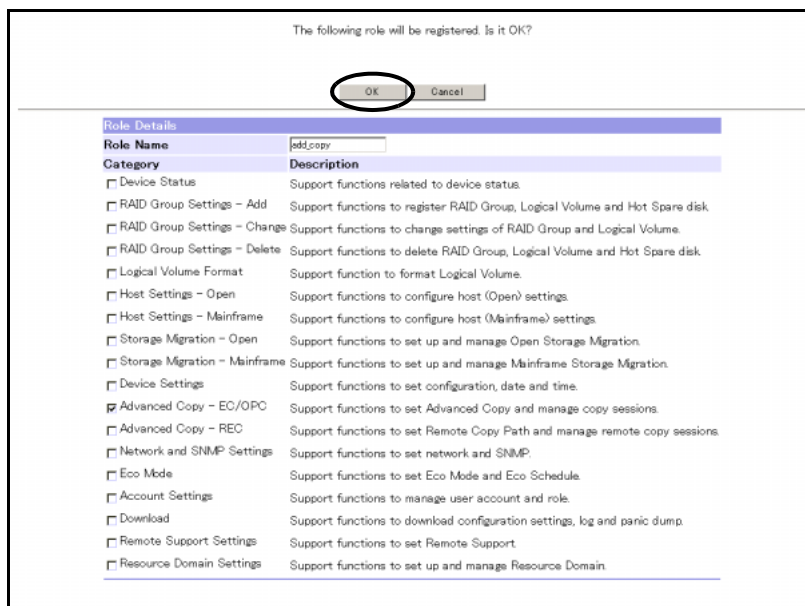
\*1: The "Resource Domain" item is displayed when logged on the ETERNUS DX400/DX8000 series, in which the Resource Domains have been registered, using a Total Administrator account.

→ The [Set Role (Check)] screen appears.

**Caution**

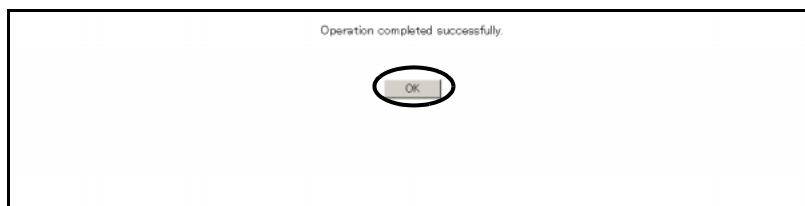
- The [Storage Migration - Open], [Remote Support Settings], and [Resource Domain Settings] categories can be set only when selecting [All Resources] as the Resource Domain.
- If the [Execute] button is clicked in the following conditions, an error screen appears.
  - When entering characters other than alphanumeric characters and symbols ("!", "-", "\_", ".") in the Role Name text box
  - When entering an existing Role Name
  - When no categories are selected
  - When logged on the ETERNUS DX400/DX8000 series, in which Resource Domains are registered, using a Total Administrator account, [0x00-0x07] is selected as the Resource Domain, and [Storage Migration - Open], [Remote Support Settings], or [Resource Domain Settings] is specified in the Category field  
(When logged on using a Resource Domain Administrator account, [Storage Migration - Open], [Remote Support Settings], and [Resource Domain Settings] are not displayed in the Category field.)

**4** Click the [OK] button.



→ The [Set Role (Result)] screen appears.

**5** Click the [OK] button.



→ Returns to the [Menu] screen.

End of procedure

### 9.1.2.2 Change Role

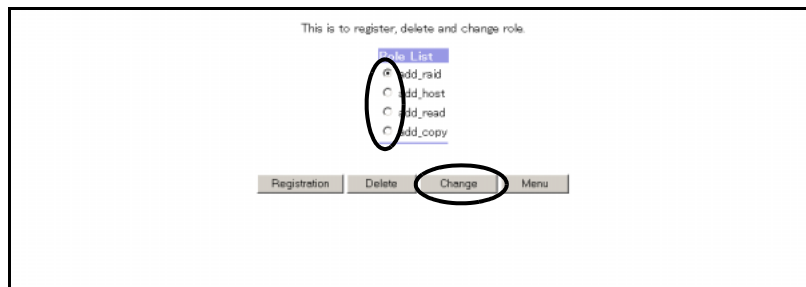
This section explains procedures to change role settings.

#### Procedure

**1** Click [Set Role] in the [User Account] menu.

→ The [Set Role (Initial)] screen appears.

**2** Select the role to be changed, and click the [Change] button.



→ The [Set Role (Change Role)] screen appears.

Refer to ["A.38.1 Set Role \(Register Role/Change Role\) Screen" \(page 810\)](#) for screen details.

**Caution**

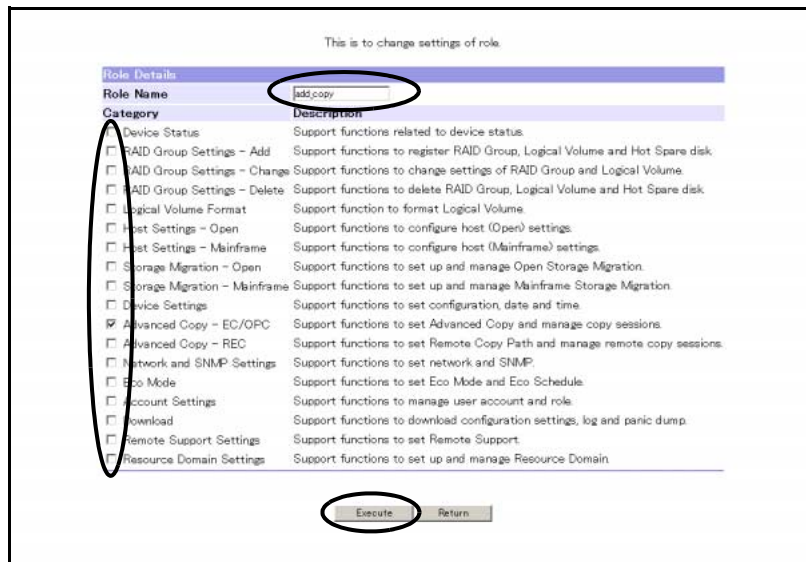
When no roles are registered in the device, the [Change] button is not displayed.

**Note**

The Role Name displayed at the top of the list is selected by default.

**3** Change the Role Name, Resource Domain(\*1), or categories for the selected role, and click the [Execute] button.

\*1: The "Resource Domain" item is displayed when logged on the ETERNUS DX400/DX8000 series, in which the Resource Domains have been registered, using a Total Administrator account.

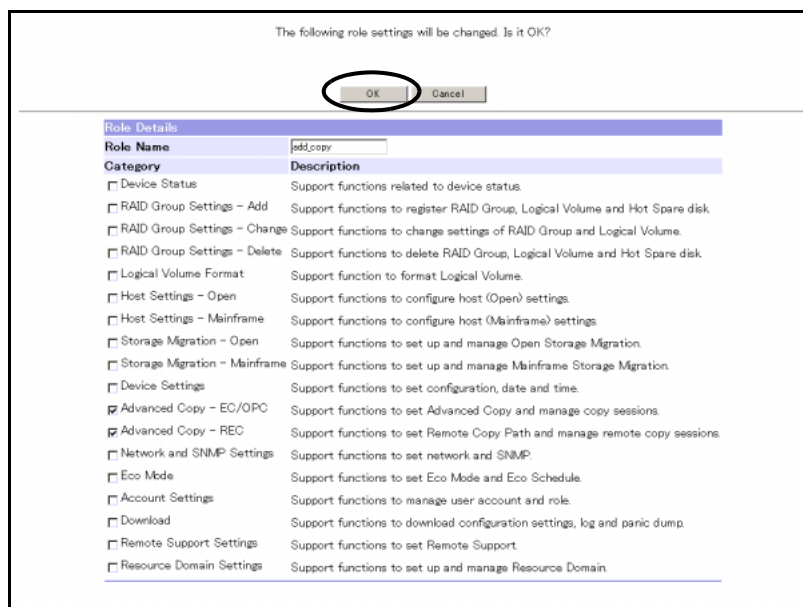


→ The [Set Role (Check)] screen appears.

**Caution** 

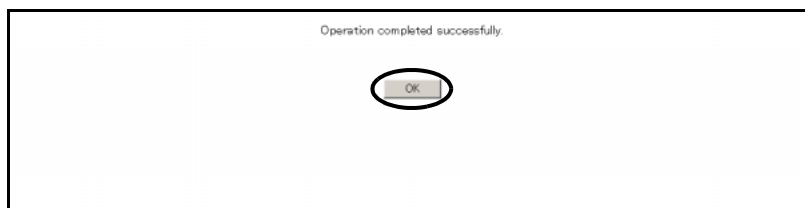
- The [Storage Migration - Open], [Remote Support Settings], and [Resource Domain Settings] categories can be set only when selecting [All Resources] as the Resource Domain.
- The roles that have already been allocated to a user account cannot change the Resource Domain.
- If the [Execute] button is clicked in the following conditions, an error screen appears.
  - When entering characters other than alphanumeric characters and symbols ("!", "-", "\_", ".") in the Role Name text box
  - When entering an existing Role Name
  - When no categories are selected
  - When logged on the ETERNUS DX400/DX8000 series, in which Resource Domains are registered, using a Total Administrator account, [0x00-0x07] is selected as the Resource Domain, and [Storage Migration - Open], [Remote Support Settings], or [Resource Domain Settings] is specified in the Category field  
(When logged on using a Resource Domain Administrator account, [Storage Migration - Open], [Remote Support Settings], and [Resource Domain Settings] are not displayed in the Category field.)

**4** Click the [OK] button.



→ The [Set Role (Result)] screen appears.

**5** Click the [OK] button.



→ Returns to the [Menu] screen.

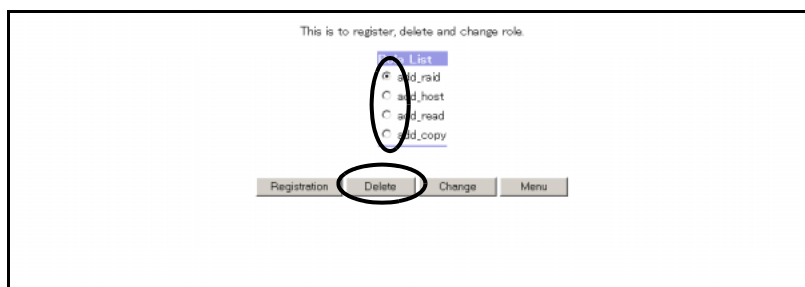
End of procedure

### 9.1.2.3 Delete Role

This section explains procedures for deleting a role.

#### Procedure

- 1** Click [Set Role] in the [User Account] menu.  
→ The [Set Role (Initial)] screen appears.
- 2** Select the role to be deleted, and click the [Delete] button.



→ The [Set Role (Deletion Check)] screen appears.

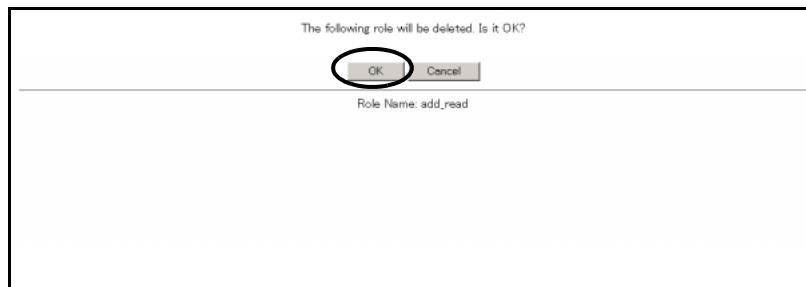
#### Caution

- When no roles are registered in the ETERNUS DX400/DX8000 series, the [Delete] button is not displayed.
- When the roles that have already been allocated to a user account is selected and the [Delete] button is clicked, an error screen appears.

#### Note

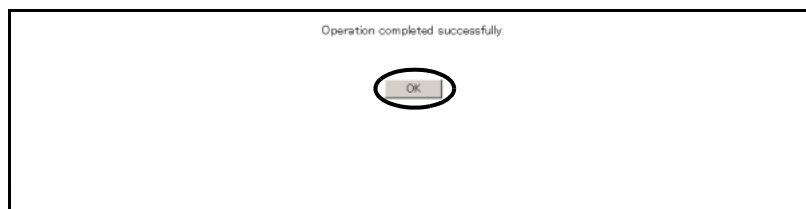
The Role Name displayed at the top of the list is selected by default.

**3** Click the [OK] button.



→ The [Set Role (Result)] screen appears.

**4** Click the [OK] button.



→ Returns to the [Menu] screen.

**End of procedure**

### 9.1.3 Set RADIUS Authentication

---

This function registers the external server (RADIUS server) that is used for authentication when logging on.

When using RADIUS Authentication, user account information (user name, password, and role) is stored in the external server. The user account is authenticated using this external server when logging on to the ETERNUSmgr. By using the RADIUS Authentication, user account management can be consolidated.

---

**Caution**

- Enable or disable RADIUS Authentication for each device.
- If RADIUS Authentication fails when "Do not use Internal Authentication" has been selected for "Authentication Error Recovery", logging on to ETERNUSmgr will not be available.
- When "Use Internal Authentication (Network Error Case)" has been selected for "Authentication Error Recovery", Internal Authentication (\*1) is performed if authentication fails in both the primary and secondary servers due to network error in either or both of the servers.
  - \*1: Internal Authentication is the standard authentication type. Internal Authentication uses user account information stored in the device to verify the input user account.
- When using RADIUS Authentication, and the role received from the server is not set in the device, the user account is operated as the default role "Read Only". Use the [Set Role] menu to set the role name and allowed functions, and register the role name to the server.

**Note**

- Up to two RADIUS servers can be registered.
- When using RADIUS Authentication, registering user account information (user name, password, and role) in RADIUS server is required. For details, refer to the manuals provided with the server.
  - \*1: Role setting is required when using other than the default role "Read Only".

---

This section explains the procedures for [Set RADIUS Authentication].  
The following operations can be performed in [Set RADIUS Authentication].

- [Enabling RADIUS Authentication Function](#)
- [Disabling RADIUS Authentication Function](#)

Procedures for each operation are described below.

### 9.1.3.1 Enabling RADIUS Authentication Function

This section describes how to enable the RADIUS Authentication.

#### Procedure

- 1** Click [Set RADIUS Authentication] in the [Account] menu.  
→ The [Set RADIUS Authentication (Initial)] screen appears.  
Refer to ["A.39.1 Set RADIUS Authentication \(Initial\) Screen" \(page 814\)](#) for screen details.
- 2** Set the following items and click the [Set] button.
  - RADIUS Authentication Function  
Enable the RADIUS Authentication function
  - Common Settings  
Set the "Use LAN Port" and "Authentication Error Recovery".
  - Primary Server (required)  
Set the primary server information to perform RADIUS Authentication.
  - Secondary Server (can be omitted)  
Set the secondary server information to perform RADIUS Authentication.

The screenshot shows the 'RADIUS Authentication Function' configuration interface. At the top, there's a section for enabling the function, which is currently checked. Below this are 'Common Settings' including 'Use LAN Port' (set to 'USER') and 'Authentication Error Recovery' (set to 'Use Internal Authentication (Any Error Case)'). The 'Primary Server' section is required and contains fields for IP Address (10.21.134.198), Port No. (1812), Authentication Type (CHAP), Shared Secret (RADIUS Secret Key.1), and Timeout (30). The 'Secondary Server' section is optional and contains fields for IP Address (10.17.80.8), Port No. (1812), Authentication Type (PAP), Shared Secret (RADIUS Secret Key.2), and Timeout (30). A large black circle is drawn around the 'Set' button at the bottom right of the form.

→ The [Set RADIUS Authentication (Check)] screen appears.

**Caution**



- This function does not confirm whether the addresses specified for "IP Address" fields for primary and secondary servers are correct or not. When using RADIUS Authentication, make sure to confirm that the correct IP Address is specified.
- If the [Set] button is clicked in the following conditions, an error screen appears.
  - Characters other than numerals are specified in the "IP Address" and/or "Port No." fields
  - Characters other than ASCII codes (0x20 – 0x7E) are specified in the "Shared Secret" field
  - All the setting items for the IP Address are something other than 0Byte (not specified) or 4Bytes (specified)
  - When the primary server is not specified
  - Either the IP Address or the Shared Secret has been specified

**3** Click the [OK] button.

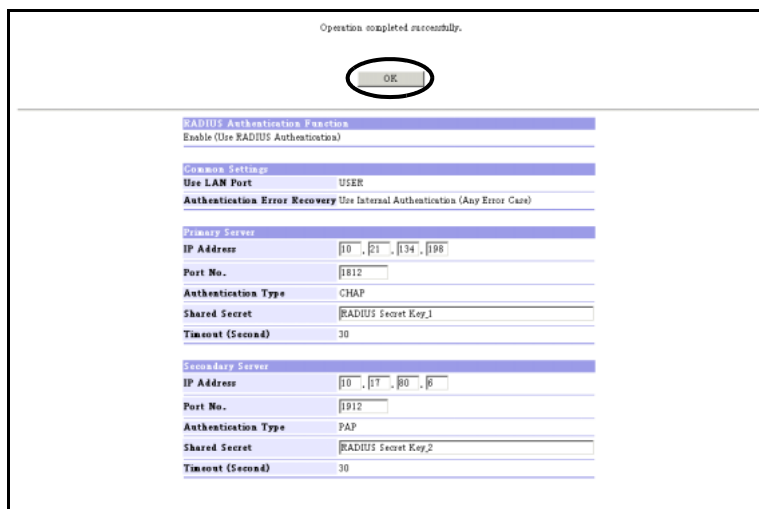
→ The [Set RADIUS Authentication (Result)] screen appears.

**Caution**



- The system error screen is displayed when "USER" is selected for the "Use LAN Port", and if the specified IP address of the RADIUS server conflicts with the internal IP addresses of the ETERNUS DX400/DX8000 series. Register the IP address and subnet mask of the RADIUS server in the "IP Access Settings" of the [Set IP Address for USER Port] function, and execute the [Set RADIUS Authentication] function again.
- The system error screen is displayed when "REMCS" is selected for the "Use LAN Port", and if the specified IP address of the RADIUS server conflicts with the internal IP addresses of the ETERNUS DX400/DX8000 series. Register the IP address and subnet mask of the RADIUS server in the "IP Access Settings" of the [Set IP Address for REMCS Port] function, and execute the [Set RADIUS Authentication] function again.

**4** Click the [OK] button.



Operation completed successfully.

OK

**RADIUS Authentication Function**  
Enable (Use RADIUS Authentication)

**Common Settings**  
Use LAN Port: USER  
Authentication Error Recovery: Use Internal Authentication (Any Error Case)

**Primary Server**  
IP Address: 0, 0, 0, 0  
Port No.: 1812  
Authentication Type: CHAP  
Shared Secret: RADIUS Secret Key,1  
Timeout (Second): 30

**Secondary Server**  
IP Address: 0, 0, 0, 0  
Port No.: 1812  
Authentication Type: PAP  
Shared Secret: RADIUS Secret Key,2  
Timeout (Second): 30

→ Returns to the [Menu] screen.

End of procedure

### 9.1.3.2 Disabling RADIUS Authentication Function

This section describes how to disable the RADIUS Authentication.

#### Procedure

- 1** Click [Set RADIUS Authentication] in the [Account] menu.  
→ The [Set RADIUS Authentication (Initial)] screen appears.  
Refer to ["A.39.1 Set RADIUS Authentication \(Initial\) Screen" \(page 814\)](#) for screen details.

**2** Set the following items and click the [Set] button.

- RADIUS Authentication Function  
Disable the RADIUS Authentication function.

The screenshot shows the 'RADIUS Authentication Function' configuration screen. At the top, there are two radio buttons: 'Enable (Use RADIUS Authentication)' and 'Disable (Use Internal Authentication)'. The 'Enable' button is selected and circled. Below this is the 'Common Settings' section with fields for 'Use LAN Port' (set to 'USER') and 'Authentication Error Recovery' (set to 'Use Internal Authentication (Any Error Case)'). The 'Primary Server' section includes fields for 'IP Address' (10.0.1.134), 'Port No.' (1812), 'Authentication Type' (CHAP), 'Shared Secret' (RADIUS Secret Key,1), and 'Timeout (Second)' (30). The 'Secondary Server' section includes fields for 'IP Address' (10.0.1.1), 'Port No.' (1812), 'Authentication Type' (PAP), 'Shared Secret' (RADIUS Secret Key,2), and 'Timeout (Second)' (30). At the bottom, there are 'Set' and 'Reset' buttons, with the 'Set' button circled.

→ The [Set RADIUS Authentication (Check)] screen appears.

**Caution**



- Even if the RADIUS Authentication function is disabled, RADIUS Authentication information in the device is maintained.
- If the [Set] button is clicked in the following conditions, an error screen appears. Even when the RADIUS Authentication function is disabled, input information is checked.
  - Characters other than numerals are specified in the "IP Address" and/or "Port No." fields
  - Characters other than ASCII codes (0x20 – 0x7E) are specified in the "Shared Secret" field
  - All the setting items for the IP Address are something other than 0Byte (not specified) or 4Byte (specified)
  - When the primary server is not specified while the secondary server is specified
  - Either the IP Address or the Shared Secret has been specified

**3** Click the [OK] button.

Please confirm that you wish to perform this operation.

---

<b>RADIUS Authentication Function</b>	
Disable (Use Internal Authentication)	
<b>Common Settings</b>	
Use LAN Port	USER
Authentication Error Recovery Use Internal Authentication (Any Error Case)	
<b>Primary Server</b>	
IP Address	[0] [1] [34] [98]
Port No.	[812]
Authentication Type	CHAP
Shared Secret	[RADIUS Secret Key,1]
Timeout (Second)	30
<b>Secondary Server</b>	
IP Address	[0] [17] [80] [6]
Port No.	[912]
Authentication Type	PAP
Shared Secret	[RADIUS Secret Key,2]
Timeout (Second)	30

→ The [Set RADIUS Authentication (Result)] screen appears.

**4** Click the [OK] button.

Operation completed successfully.

---

<b>RADIUS Authentication Function</b>	
Disable (Use Internal Authentication)	
<b>Common Settings</b>	
Use LAN Port	USER
Authentication Error Recovery Use Internal Authentication (Any Error Case)	
<b>Primary Server</b>	
IP Address	[0] [1] [34] [98]
Port No.	[812]
Authentication Type	CHAP
Shared Secret	[RADIUS Secret Key,1]
Timeout (Second)	30
<b>Secondary Server</b>	
IP Address	[0] [17] [80] [6]
Port No.	[912]
Authentication Type	PAP
Shared Secret	[RADIUS Secret Key,2]
Timeout (Second)	30

→ Returns to the [Menu] screen.

End of procedure

## Appendix A Screen Details

This chapter describes the functions of the Screen Details.

### A.1 Device Status

#### A.1.1 Device Status (Collect Device Information) Screen

On this screen, you can get information for all the disk drives installed in the ETERNUS DX400/DX8000 series, totally or separately.

Clicking the [Detail] button on the [Base Rack] screen jumps to this screen. After acquisition is completed, the screen jumps to the [Device Status (Save Device Information)] screen automatically.

The device information which can be acquired is as follows.

- Displayed contents

- Batch acquisition

Clicking the [Batch acquisition] link acquires Device iSCSI Name information, information about all CAs installed in the device, and information about all disks, including the disks that are installed in the [Expansion Rack]. The file name is "device.txt".

- Device iSCSI Name information
- CA information
- Disk information

For details, refer to ["Individual acquisition" \(page 669\)](#).

- Individual acquisition

- Device iSCSI Name information

Clicking the [Device iSCSI Name] link acquires the device iSCSI name. The file name is "iscsiname.txt".

- CA information

Clicking the [All CA] link acquires the following information about CA installed in the device at once. The file name is "calist.txt".

- Location information (CM#x CA#y)
- CA type (FC 4port, etc.)
- Port
- WWN (FC, FCLINK only)

- Disk information

Clicking the [DE#xx] link acquires the following disk information about all DEs installed in the device for each DE. The file name is "disklist\_deXX.txt " (XX: DE-ID).

- Location information (Disk#xx)
- Disk Type/Usage (Disk capacity/SYS, DATA, HS)
- Firmware
- WWN
- Vendor ID
- Product ID
- Serial Number

## A.2 Resource Domain List

### A.2.1 Resource Domain List (Initial) Screen

A list of the Resource Domains is displayed.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed Resource Domain information differs depending on the current user account.

When logged on using a Total Administrator account, all the Resource Domain information registered in the ETERNUS DX400/DX8000 series is displayed. When logged on using a Resource Domain Administrator account, only the information of the relevant Resource Domain is displayed.

#### ■ Resource Domain List

##### ● Displayed contents

- Resource Domain No.  
The Resource Domain number (0x00 – 0x07) for the relevant Resource Domain is displayed.
- Resource Domain Name  
The Resource Domain name for the relevant Resource Domain is displayed within 16 characters.  
If a Resource Domain name is not specified, the field is blank.
- Status  
The status of the relevant Resource Domain is displayed with a LED image and text.  
Resource Domain status is determined by combined status of management target resource and other Shared Resources (example: CM and CA) for each Resource Domain.  
Refer to ["3.1 Device Status" \(page 43\)](#) for the meaning of status.
- TPPs  
The number of Thin Provisioning Pools assigned to the relevant Resource Domain using the [Assign Resources] menu is displayed in decimal numbers.
- RAID Groups  
The number of RAID Groups assigned to the relevant Resource Domain is displayed in decimal numbers.  
When a Thin Provisioning Pool is assigned to a Resource Domain, RAID Groups registered in the Thin Provisioning Pool are also assigned to the same Resource Domain. In the [RAID Groups] field, the total number of RAID Groups that are directly assigned to the Relevant Resource Domain using the [Assign Resources] function, and the total number of RAID Groups in the Thin Provisioning Pool that are assigned to the relevant Resource Domain using the [Assign Resources] function, are displayed.

- Assigned Resources / Assignable Resources

The "Assigned Resources / Assignable Resources" for the management target resource is displayed in decimal number.

- Assigned Resources:

The number of resources assigned to the relevant Resource Domain using the [Assign Resources] menu.

- Assignable Resources:

The maximum number of resources which can be assigned to the relevant Resource Domain using the [Assign Numerical Resource] menu.

The following are the management target resources:

- Logical Volume

The "Assigned Resources" and the "Assignable Resources" for the Logical Volume are displayed.

For Logical Volumes, "Assigned Resources" indicates the total number of Logical Volumes registered in the RAID groups and Thin Provisioning Pools that are assigned by using the [Assign Resources] menu to the relevant Resource Domain. The assigned target Logical Volumes are "Open", "SDV", and "TPV".

- Host WWN

The "Assigned Resources" and the "Assignable Resources" for the Host World Wide Name are displayed.

- iSCSI Host

The "Assigned Resources" and the "Assignable Resources" for the iSCSI Host are displayed.

- Affinity Group

The "Assigned Resources" and the "Assignable Resources" for the Affinity group are displayed.

- Host Response

The "Assigned Resources" and the "Assignable Resources" for the Host Response are displayed.

- Eco-mode Schedule

The "Assigned Resources" and the "Assignable Resources" for the Eco-mode Schedule are displayed.

## A.3 RAID Group List

### A.3.1 RAID Group List (Initial) Screen

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed RAID Groups differ depending on the current user account.

When logged on using a Total Administrator account, all the RAID Groups that are assigned to Resource Domains are displayed. When logged on using a Resource Domain Administrator account, only the RAID Groups that are assigned to the relevant Resource Domain, and only the RAID Groups that are assigned to the Shared Resource, are displayed.

When Resource Domains are not registered, all the RAID Groups registered in the ETERNUS DX400/DX8000 series are displayed.

#### ■ RAID Group List

##### ● Displayed contents

- RAID Group No.

The RAID Group number is displayed in 3-digit hexadecimal.

When the [RAID Group No.] link is clicked, the installation status of the disks which configure the RAID Group is displayed.

- RAID Group Name

The RAID Group name is displayed within 16 characters.

If a RAID Group name is not specified, the field is blank.

- RAID Level

The RAID level (RAID0, RAID1, RAID1+0, RAID5, or RAID6) of the RAID Group is displayed.

- Status

The status of the RAID Group is displayed.

When the RAID Group is in Rebuild/Copyback process (when the status of the RAID Group is [Exposed], [Copyback], [Rebuild], [Spare in Use], [Partially Exposed Rebuild], or [Exposed Rebuild]), the [Progress] link is displayed.

Clicking the [Progress] link enables checking the Rebuild/Copyback progress. During the LDE, the [LDE Progress] link is displayed.

- Available

The RAID Group is in normal status

- Exposed

The RAID Group lost redundancy due to disk failure

- Copyback

Copying back from a hot spare disk to a new data disk is in progress

- Rebuild

Rebuild from failed data disk to hot spare disk is in process

- Spare in Use  
Rebuild to hot spare disk is complete, and the RAID Group maintains redundancy using hot spare disk
- Partially Exposed Rebuild:  
This status is displayed for RAID6. Rebuilding from the first failed data disk to hot spare disk is in process
- Exposed Rebuild:  
This status is displayed for RAID6. Another data disk has failed. Rebuilding from the first failed data disk to the hot spare disk is in process. All the hot spare disks are in use so the second failed data disk is waiting for a free hot spare disk
- Controlling CM  
The Controlling CM and CPU for the RAID Group is displayed between CM#0-CPU#0, 1 to CM#7-CPU#0, 1.
- Capacity (MB)  
The total capacity of the RAID Group is displayed in MB.
- DVCF Mode  
The DVCF mode is displayed when Mainframe Volume or MVV is registered in the RAID Group.  
"Enabled" when the DVCF mode is [ON], and "Disabled" when the DVCF mode is [OFF].  
[-] (hyphen) is displayed if any Open Volume (including SDV, SDPV, and TPV) is registered in the RAID Group. Also, [-] or [OFF (Disabled)] is displayed if there is no volume registered in the RAID Group.
- Usage  
The usage of the RAID Group (Open, SDV, SDPV, Mainframe, MVV, TMP, RDB, -) is displayed.  
The [RAID Group List (Volume in the RAID Group)] screen is displayed by clicking each link.  
The RAID Group for operation, which will be created during LDE, is displayed as "TMP". The link is not displayed for the [TMP].  
If a RAID Group is registered in the Thin Provisioning Pool, [-] (hyphen) is displayed.  
If a RAID Group is registered as a REC Disk Buffer, the [RDB] link is displayed. Clicking the [RDB] link displays detailed information and the formatting progress of the REC Disk Buffer.  
If no volume is registered in the RAID Group, [-] (hyphen) is displayed.
- Resource Domain No.  
The Resource Domain number (0x00 – 0x07) to which the RAID Group belongs is displayed.  
If the RAID Group is a Shared Resource, or if the RAID Group is registered as a REC Disk Buffer, [-] (hyphen) is displayed.
- Resource Domain Name  
The Resource Domain name to which the RAID Group belongs is displayed within 16 characters.  
If a Resource Domain name is not specified, the field is blank.  
If the RAID Group is a Shared Resource, [Share] is displayed.  
If the RAID Group is registered as a REC Disk Buffer, [-] (hyphen) is displayed.
- TPP No.  
The Thin Provisioning Pool number where the RAID Group is registered is displayed in 2-digit hexadecimal.  
If the RAID Group is not registered in the Thin Provisioning Pool, [-] (hyphen) is displayed.

- TPP Name

The Thin Provisioning Pool name where the RAID Group is registered is displayed within 16 characters.

If no Pool name is specified, the field is blank.

If the RAID Group is not registered in the Thin Provisioning Pool, [-] (hyphen) is displayed.

---

**Caution**



When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the [Resource Domain No.] and the [Resource Domain Name] are not displayed.

---

## A.4 Thin Provisioning Pool List

### A.4.1 Thin Provisioning Pool List (Pool List) Screen

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed Thin Provisioning Pools differ depending on the current user account.

When logged on using a Total Administrator account, all the Thin Provisioning Pools that are assigned to the Resource Domains are displayed. When logged on using a Resource Domain Administrator account, only the Thin Provisioning Pools that are assigned to the relevant Resource Domain, and only the Thin Provisioning Pools that are assigned to the Shared Resource, are displayed.

When Resource Domains are not registered, all the Thin Provisioning Pools registered in the ETERNUS DX400/DX8000 series are displayed.

#### ■ Thin Provisioning Pool List

##### ● Displayed contents

- TPP No.  
Pool number of the target Thin Provisioning Pool is displayed in 2-digit hexadecimal.
- TPP Name  
Pool name of the target Thin Provisioning Pool is displayed within 16 characters.  
If a Thin Provisioning Pool name is not specified, the field is blank.
- Disk Type  
The type of disks that configure the target Thin Provisioning Pool are displayed.
  - Online: Fibre Channel disk drives
  - Nearline: Nearline SATA disk drives
- Reliability  
Reliability of the target Thin Provisioning Pool is displayed.
  - High: High reliability
  - Medium: Moderate reliability
  - None: Unreliable
- Status  
The status of the target Thin Provisioning Pool is displayed.  
When the Thin Provisioning Pool or volumes in the Thin Provisioning Pool are under formatting process, the [Format Progress] link is displayed.
- Capacity (MB)  
Total capacity of the Thin Provisioning Pool is displayed in MB.
- Used capacity (MB)  
Physical capacity allocated to the volume from the target Thin Provisioning Pool is displayed in MB.  
When the device is in the "Not Ready" status, [?] is displayed.

- Notice (%)
  - Status  
Usage of the target Thin Provisioning Pool (TPP) is displayed.
    - Normal:  
TPP usage does not exceed the "Caution" threshold (\*1).
    - Caution:  
TPP usage exceeds the "Caution" threshold, but does not exceed the "Warning" threshold (\*1).  
"Caution" is displayed in orange characters.
    - Warning:  
TPP usage exceeds the "Warning" threshold (\*1).  
"Warning" is displayed in red characters.  
\*1:  $\text{TPP usage (\%)} = \text{Used Capacity (MB)} / \text{Capacity (MB)} \times 100$   
When the device is in the "Not Ready" status, [?] is displayed.
  - Warning  
Notice specified for the target Thin Provisioning Pool. Threshold of "Warning (high)" in percent figures (%).
  - Caution  
Notice specified for the target Thin Provisioning Pool. Threshold of "Warning (low)" in percent figures (%).  
However, when no "Caution" threshold is specified, [-] (hyphen) is displayed.
- Encryption  
The encryption status of the target Thin Provisioning Pool is displayed.
  - Yes: Encrypted Pool
  - -: Non-encrypted Pool
- Usage  
When volumes are registered in the target Thin Provisioning Pool, the volume type (TPV) is displayed. The link is displayed for the volume type.
  - Thin Provisioning Volume: TPV  
If there are no volumes in the Thin Provisioning Pool, [-] (hyphen) is displayed.
- Resource Domain No.  
The Resource Domain number (0x00 – 0x07) to which the Thin Provisioning Pool belongs is displayed.  
If the Thin Provisioning Pool is a Shared Resource, [-] (hyphen) is displayed.
- Resource Domain Name  
The Resource Domain name to which the Thin Provisioning Pool belongs is displayed within 16 characters.  
If a Resource Domain name is not specified, the field is blank.  
If the Thin Provisioning Pool is a Shared Resource, [Share] is displayed.

---

**Caution**



When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the [Resource Domain No.] and the [Resource Domain Name] are not displayed.

---

## A.4.2 Thin Provisioning Pool List (Volume List in the Pool) Screen

---

On this screen, the list of Thin Provisioning Volumes registered in the selected Thin Provisioning Pool is displayed. The registration status and usage information of the selected Thin Provisioning Pool are displayed in the "Thin Provisioning Pool Information". A list of the Thin Provisioning Volumes created in the selected Thin Provisioning Pool is displayed in the "Volume List in the Thin Provisioning Pool".

### ■ Thin Provisioning Pool Information

#### ● Displayed contents

- **TPP No.**  
Pool number of the target Thin Provisioning Pool is displayed in 2-digit hexadecimal.
- **TPP Name**  
Pool name of the target Thin Provisioning Pool is displayed within 16 characters.  
If a Thin Provisioning Pool name is not specified, the field is blank.
- **Total TPV Capacity in the TPP**  
The total capacity of volumes created in the selected Thin Provisioning Pool is displayed in MB. Total TPV Capacity in the TPP is the same value as the total value of "Capacity (MB)" displayed in the "Volume List in the Thin Provisioning Pool".
- **TPP Capacity**  
The remaining logical capacity that can be used for creating volume to expand the selected Thin Provisioning Pool (TPP) to the maximum size is displayed in MB.  
$$\text{TPP Capacity (MB)} = \text{Maximum TPP capacity for each model (MB)} - \text{Total TPV Capacity in the TPP (MB)}$$
- **TPP Used Capacity**  
Physical capacity allocated to the volume from the target Thin Provisioning Pool (TPP) is displayed in MB and %. (\*1)

$$\text{TPP Used Capacity (\%)} = \text{TPP Used Capacity (MB)} / \text{Capacity displayed in the Thin Provisioning Pool List (MB)} \times 100$$

When the device is in the "Not Ready" status, [?] is displayed.

- **TPP Free Capacity**  
Free capacity in the target Thin Provisioning Pool (TPP) is displayed in MB.  
$$\text{TPP Free Capacity (MB)} = \text{Capacity displayed in the Thin Provisioning Pool List (MB)} - \text{Used capacity displayed in the Thin Provisioning Pool List (MB)}$$

When the device is in the "Not Ready" status, [?] is displayed.

- Notice
  - Status

Usage of the target Thin Provisioning Pool (TPP) is displayed.

    - Normal:  
TPP Used Capacity (%) does not exceed the "Caution" threshold.
    - Caution:  
TPP Used Capacity (%) exceeds the "Caution" threshold, but does not exceed the "Warning" threshold.  
"Caution" is displayed in orange characters.
    - Warning:  
TPP Used Capacity (%) exceeds the "Warning" threshold.  
"Warning" is displayed in red characters.

When the device is in the "Not Ready" status, [?] is displayed.
  - Warning

Notice specified for the target Thin Provisioning Pool. Threshold of "Warning (high)" in MB and percent figures (%).
  - Caution

Notice specified for the target Thin Provisioning Pool. Threshold of "Warning (low)" in MB and percent figures (%).  
However, when no "Caution" threshold is specified, [-] (hyphen) is displayed.
- Expansion Information
  - Disk Type

Required disk type to expand the selected Thin Provisioning Pool is displayed.

    - FC: Fibre Channel disk drive
    - SATA: Nearline SATA disk drive
  - Disk Count

Required number of disks to expand the selected Thin Provisioning Pool is displayed.  
Thin Provisioning Pool is expanded in units of RAID Groups. When expanding the Thin Provisioning Pool, the number of disks calculated according to the following formula is required: (Disk Count) × (number of additional RAID Groups)
- Resource Domain No.

The Resource Domain number (0x00 – 0x07) to which the Thin Provisioning Pool belongs is displayed.  
If the Thin Provisioning Pool is a Shared Resource, [-] (hyphen) is displayed.
- Resource Domain Name

The Resource Domain name to which the Thin Provisioning Pool belongs is displayed within 16 characters.  
If a Resource Domain name is not specified, the field is blank.  
If the Thin Provisioning Pool is a Shared Resource, [Share] is displayed.

---

**Caution**



When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the [Resource Domain No.] and the [Resource Domain Name] are not displayed.

---

- \*1: The "TPP Used Capacity" value displayed in the Thin Provisioning Pool Information and the total of "Allocated Capacity" values displayed in the Volume List in the Thin Provisioning Pool may be different. This occurs when the host requests writing to the Thin Provisioning Volume. The capacity secured in the Thin Provisioning Pool for the selected Thin Provisioning Volume and the capacity actually used is different. In the "TPP Used Capacity" of Thin Provisioning Pool Information, the total value of capacity secured for the Thin Provisioning Volume is displayed. In the "Allocated Capacity" in the Volume List in the Thin Provisioning Pool, the actual capacity allocated from the Thin Provisioning Pool is displayed in units of volumes.

## ■ Volume List in the Thin Provisioning Pool

### ● Displayed contents

- Logical Volume
  - Mainframe#  
[-] (hyphen) is displayed.
  - Open#  
Logical Volume number of the target volume is displayed in 4-digit hexadecimal.
- Logical Volume Name  
Logical Volume name of the target volume is displayed within 16 characters.  
If a Logical Volume name is not specified, the field is blank.
- Status  
The status of the target volume is displayed.  
When formatting has been aborted, "Format Aborted" is displayed.
- Volume Type  
The volume type is displayed.
  - Thin Provisioning Volume: TPV
  - Temporary Volume: Temporary (\*1)
- Encryption  
The encryption status of the volume is displayed.
  - Yes:Encrypted Volume
  - -:Non-encrypted Volume
- Capacity (MB)  
The logical capacity of the volume is displayed in MB.
- Allocated Capacity (MB)  
Physical capacity allocated to the volume from the target Thin Provisioning Pool is displayed in MB.  
When the device is in the "Not Ready" status, [?] is displayed.

- Notice (%)
    - Status

The status of the free area in Thin Provisioning Pool (TPP) for each volume is displayed.

      - Normal:

Proportion of TPP to non-allocated Thin Provisioning Volume is larger than the "Caution" thresholds.  
Free area of TPP  $\geq$  Non-allocated Thin Provisioning Volume capacity  $\times$  "Caution" threshold (%)
      - Caution:

Proportion of TPP to non-allocated Thin Provisioning Volume is smaller than the "Caution" thresholds.  
Free area of TPP  $<$  Non-allocated Thin Provisioning Volume capacity  $\times$  "Caution" threshold (%)  
"Caution" is displayed in orange characters.
    - When the device is in the "Not Ready" status, [?] is displayed.
  - Reading

The status of the free area in the Thin Provisioning Pool (TPP) for each volume is displayed in decimal number.

Reading = TPP Free Capacity / Non-allocated Thin Provisioning Volume capacity

A larger Reading value indicates that there are more free area in the TPP. Note that when the Reading value is larger than 500, [>500] is displayed. When the Reading value is smaller than 1, [0] is displayed. When the Non-allocated Thin Provisioning Volume capacity value is [0], [-] (hyphen) is displayed.  
When the device is in the "Not Ready" status, [?] is displayed.
  - Caution

Threshold of caution for the target volume is displayed in percent figures (%).
- \*1: Migration source volume that fails to be deleted after RAID Migration has been completed, or work volume that fails to be deleted after TPV balancing.

## A.5 Volume List

### A.5.1 Volume List (Initial) Screen

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed volumes differ depending on the current user account.

When logged on using a Total Administrator account, all the volumes that are assigned to Resource Domains are displayed. When logged on using a Resource Domain Administrator account, only the volumes that are assigned to the relevant Resource Domain, and only the volumes that are assigned to the Shared Resource, are displayed.

When Resource Domains are not registered, all the volumes registered in the ETERNUS DX400/DX8000 series are displayed.

#### ■ Volume List

##### ● Displayed contents

- Logical Volume

- Mainframe#
- Open#

Logical Volume numbers of volumes are displayed in 4-digit hexadecimal.

If the same Logical Volume number appears repeatedly, it indicates that these volumes under the same number are concatenated. Refer to ["Logical Volume list \(Concatenated MVV Volumes\)" \(page 685\)](#) or ["Logical Volume list \(Concatenated Open Volumes\)" \(page 686\)](#) for concatenated volumes.

- Logical Volume Name

Logical Volume names are displayed within 16 characters. If a Logical Volume name is not specified, the field is blank.

For the following volumes, [-] (hyphen) is displayed.

- Mainframe Volume
- Snap Data Pool Volume
- TmpOpen Volume (\*1)

\*1: Concatenation destination volume when LUN Concatenation is in progress.

Refer to ["Logical Volume list \(Concatenated MVV Volumes\)" \(page 685\)](#) or ["Logical Volume list \(Concatenated Open Volumes\)" \(page 686\)](#) for concatenated volume name.

- Status

Status of the volume is displayed.

If the volume is being formatted, the [Format Progress] link is displayed. Clicking the [Format Progress] link enables checking the status of the format progress.

If the volume is being encrypted, the [Encrypt Progress] link is displayed. Clicking the [Encrypt Progress] link enables checking the status of the encrypt progress.

When the formatting has been aborted, "Format Aborted" is displayed.

When the SDPV is scheduled for deletion, "Scheduled for Deletion" is displayed.

- Available  
The relevant volume is in normal status.
  - Broken  
The relevant volume is broken. ("Broken" is displayed in red characters.)
  - Exposed  
The RAID Group to which the relevant volume belongs lost redundancy due to disk failure.
  - Partially Exposed  
One of the disks in the RAID Group to which the relevant volume belongs failed (only for RAID6).
  - Copyback  
Copyback or Redundant Copy is in progress in the RAID Group to which the relevant volume belongs.
  - Readyng  
The relevant volume is not formatted.
  - Rebuild  
Rebuild is in progress in the RAID Group to which the relevant volume belongs.
  - Spare in Use  
The RAID Group to which the relevant volume belongs manages the redundancy of the group using a HS.
  - Not Ready  
The RAID Group to which the relevant volume belongs is blocked.
  - Partially Exposed Rebuild  
A disk in the RAID Group to which the relevant volume belongs failed, and rebuilding is in progress (only for RAID6).
  - Exposed Rebuild  
Two disks in the RAID Group to which the relevant volume belongs failed, and the rebuilding of one of them is in progress (only for RAID6).
- Volume Type  
The volume type is displayed.
    - Open Volume:  
Open
    - Snap Data Volume:  
SDV
    - Snap Data Pool Volume:  
SDPV
    - Thin Provisioning Volume:  
TPV
    - TmpOpen Volume:  
TmpOpen (\*1)
    - Temporary Volume:  
Temporary (\*2)
    - Mainframe Volume:  
F6427G, F6427H, or F6427K
    - MVV Volume:  
MVV(G), MVV(H), or MVV(K)
- \*1: Concatenation destination volume when LUN Concatenation is in progress.
- \*2: Migration source volume that fails to be deleted after RAID Migration has been completed, or work volume that fails to be deleted after TPV balancing.

For SDVs, the [SDV] link is displayed.  
For SDPVs, the [SDPV] link is displayed.

- Encryption  
The encrypt status of the volume is displayed.
  - Yes: Encrypted Volume
  - -: Non-encrypted Volume"-" (Non-encrypted volume) is displayed for volumes undergoing encryption up until the operation is completed.
- Capacity (MB)  
The volume capacity is displayed in MB.  
If the volume is for Mainframe (including MVV), [-] is displayed.
- Resource Domain No.  
The Resource Domain number (0x00 – 0x07) to which the volume belongs is displayed.  
For a Shared Resource volume, or volume that cannot be assigned to the Resource Domains, [-] (hyphen) is displayed.  
Volumes that cannot be assigned to the Resource Domain are as follows:
  - SDPV
  - F6427G, F6427H, or F6427K
  - MVV(G), MVV(H), or MVV(K)
- Resource Domain Name  
The Resource Domain name to which the volume belongs is displayed within 16 characters.  
If a Resource Domain name is not specified, the field is blank.  
For a Shared Resource volume, [Share] is displayed.  
For a volume that cannot be assigned to the Resource Domains, [-] (hyphen) is displayed.
- RAID Group No.  
The RAID Group number to which the volume belongs is displayed in 3-digit hexadecimal.  
For a Thin Provisioning Volume, [-] (hyphen) is displayed.
- RAID Group Name  
The RAID Group name to which the volume belongs is displayed within 16 characters.  
If a RAID Group name is not specified, the field is blank.  
For a Thin Provisioning Volume, [-] (hyphen) is displayed.
- TPP No.  
The Thin Provisioning Pool number to which the volume belongs is displayed in 2-digit hexadecimal.  
For a non-Thin Provisioning Volume, [-] (hyphen) is displayed.
- TPP Name  
The Thin Provisioning Pool name to which the volume belongs is displayed within 16 characters.  
If a Thin Provisioning Pool name is not specified, the field is blank.  
For a non-Thin Provisioning Volume, [-] (hyphen) is displayed.

---

**Caution**



When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the [Resource Domain No.] and the [Resource Domain Name] are not displayed.

---

## ■ Logical Volume list (Concatenated MVV Volumes)

The displayed contents of MVV concatenated volume is as follows.

### ● Displayed contents

- Logical Volume

- Mainframe#

- Open#

For a Mainframe system, the Logical Volume number for each volume that configures the concatenated volume is displayed.

For an Open system, the primary Logical Volume number, as well as the [Concatenated order/Total number concatenated] for each Logical Volume that configures the concatenated volume is displayed.

- Logical Volume Name

The Logical Volume name for the concatenated volume is displayed in the Name field of the first concatenated order volume.

If a Logical Volume name is not specified, the field is blank.

For volumes other than the first concatenated order volume, [-] (hyphen) is displayed.

- Status

The status of each Logical Volume that configures the concatenated volume is displayed.

If the volume is being formatted, the [Format Progress] link is displayed.

Clicking the [Format Progress] link enables checking the status of the format progress for each volume that configures the concatenated volume.

If the volume is being encrypted, the [Encrypt Progress] link is displayed.

Clicking the [Encrypt Progress] link enables checking the status of the encrypt progress for each volume that configures the concatenated volume.

When the formatting has been aborted, "Format Aborted" is displayed.

- Volume Type

The volume type of each Logical Volume that configures the concatenated volume is displayed.

- Volume Type: MVV(G), MVV(H), or MVV(K)

- Encryption

The encryption status of each Logical Volume that configures the concatenated volume is displayed.

- Yes: Encrypted Volume

- -: Non-encrypted Volume

"-" (Non-encrypted volume) is displayed for volumes undergoing encryption up until the operation is completed.

- Capacity (MB)

[-] (hyphen) is displayed for each Logical Volume that configures the concatenated volume.

- Resource Domain No.

[-] (hyphen) is displayed.

- Resource Domain Name

[-] (hyphen) is displayed.

- RAID Group No.  
The RAID Group number for each Logical Volume that configures the concatenated volume is displayed.
- RAID Group Name  
The RAID Group name for each Logical Volume that configures the concatenated volume is displayed.  
If a RAID Group name is not specified, the field is blank.
- TPP No.  
[-] (hyphen) is displayed
- TPP Name  
[-] (hyphen) is displayed

#### ■ Logical Volume list (Concatenated Open Volumes)

##### ● Displayed contents

- Logical Volume
  - Mainframe#
  - Open#  
The primary Logical Volume number, as well as [Concatenated order/Total number concatenated] for each Logical Volume that configures the concatenated volume is displayed.
- Logical Volume Name  
The Logical Volume name for the concatenated volume is displayed in the Name field of the first concatenated order volume.  
If a Logical Volume name is not specified, the field is blank.  
For volumes other than the first concatenated order volume, [-] (hyphen) is displayed.
- Status  
The primary Logical Volume status is displayed.  
If the volume is being formatted, the [Format Progress] link is displayed.  
Clicking the [Format Progress] link enables checking the status of the format progress for each volume that configures the concatenated volume.  
If the volume is being encrypted, the [Encrypt Progress] link is displayed.  
Clicking the [Encrypt Progress] link enables checking the status of the encrypt progress for each volume that configures the concatenated volume.  
When the formatting has been aborted, "Format Aborted" is displayed.
- Volume Type  
The primary Logical Volume type is displayed.
  - Volume type: Open
- Encryption  
The encryption status of each Logical Volume that configures the concatenated volume is displayed.
  - Yes: Encrypted Volume
  - -: Non-encrypted Volume"-" (Non-encrypted volume) is displayed for volumes undergoing encryption up until the operation is completed.

- Capacity (MB)  
The [Capacity of the Logical Volume/Total volume] for each Logical Volume that configures the concatenated volume is displayed.
- Resource Domain No.  
The Resource Domain number (0x00 – 0x07) of each Logical Volume that configures the concatenated volume is displayed.  
When the relevant volume is a Shared Resource, [-] (hyphen) is displayed.
- Resource Domain Name  
The Resource Domain name for each Logical Volume that configures the concatenated volume is displayed within 16 characters.  
If a Resource Domain name is not specified, the field is blank.  
When the relevant volume is a Shared Resource, [Share] is displayed.
- RAID Group No.  
The RAID Group number for each Logical Volume that configures the concatenated volume is displayed.
- RAID Group Name  
The RAID Group name for each Logical Volume that configures the concatenated volume is displayed.  
If a RAID Group name is not specified, the field is blank.
- TPP No.  
[-] (hyphen) is displayed.
- TPP Name  
[-] (hyphen) is displayed.

---

**Caution**



When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the [Resource Domain No.] and the [Resource Domain Name] are not displayed.

---

## A.6 Advanced Copy Status

### A.6.1 Advanced Copy Status (EC Session List) Screen

This screen displays status of EC sessions.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed EC sessions differ depending on the current user account. When logged on using a Total Administrator account, all the active EC sessions are displayed. When logged on using a Resource Domain Administrator account, the active EC sessions in the ETERNUS DX400/DX8000 series in which the copy source or copy destination volume is registered in the relevant Resource Domain, Shared Resource, or volumes that cannot be assigned to Resource Domains, are displayed.

When Resource Domains are not registered, all the active EC sessions are displayed.

#### ■ EC Session List

##### ● Displayed contents

- SID

The session ID is displayed in 0x0000 – 0xFFFF (hexadecimal).

Clicking the [SID] link displays the [EC Session Details] screen. However, when [Reserve] is displayed for [Status], a link is not displayed.

- Type

Relevant session type is displayed.

- EC: EC session.
- MON: Monitoring session. (\*1)

\*1: Monitoring session is used to estimate the updated data size.

The updated data size is displayed on [Completed Block]. Since the Monitoring session only exists on the copy source and not on the copy destination, a hyphen [-] is displayed in the [To Vol.] field.

- Generation

[-] (hyphen) is displayed.

- Status

The status of the session is displayed.

- Reserve: Session ID is reserved.
- Active: Operating normally
- Error: Interruption due to error
- Suspend: Interruption by command from the host

- Error Code

The error code of the session is displayed in 0x00 – 0xFF (hexadecimal). However, when the [Status] is [Reserve], the field is blank.

- Phase  
Operation status of the session is displayed.  
When the [Status] is [Reserve], the field is blank. In other cases, it is shown as below.
  - EC
    - No Pair: Duplicated pair of EC copy source and EC copy destination is not yet set up
    - Copying: EC copy is in progress
    - Equivalent: After the copy processing, data in EC copy source and EC copy destination are duplicated, and the equivalent status is maintained
  - MON
    - Copying: Copy is in progress
- Time sec.  
The elapsed time from starting the session is displayed. (Unit: seconds)  
However, when the [Status] is [Reserve], the field is blank.
- Volume Type  
The type of the volume (Open, Mainframe) to be copied in the session is displayed.  
[Open] is displayed for Monitoring sessions.  
However, when the [Status] is [Reserve], the field is blank.
- From Vol.  
The Logical Volume number of the copy source in the session is displayed in 0x0000 – 0x3FFF (hexadecimal).  
However, when the [Status] is [Reserve], the field is blank.
- To Vol.  
The Logical Volume number of the copy destination in the session is displayed in 0x0000 – 0x3FFF (hexadecimal).  
[-] (hyphen) is displayed for Monitoring sessions.  
However, when the [Status] is [Reserve], the field is blank.
- Total Block  
The total number of data blocks that are to be copied for each session is displayed in decimal.  
Units for each volume type are as follows:
  - Open Volume: Block
  - Mainframe Volume: Track  
However, when the [Status] is [Reserve], the field is blank.
- Completed Block  
The number of data blocks that have already been copied for each session is displayed in decimal.  
Units for each volume type are as follows:
  - Open Volume: Block
  - Mainframe Volume: Track  
Updated data size of the copy source is displayed for Monitoring sessions.  
However, when the [Status] is [Reserve], the field is blank.
- Tracking Block  
[-] (hyphen) is displayed.  
However, when the [Status] is [Reserve], the field is blank.

- SDP Used Block  
[-] (hyphen) is displayed.  
However, when the [Status] is [Reserve], the field is blank.
  - Resolution  
The bitmap ratio of the session (x1/x2/x4/x8/x16) (\*1) is displayed.  
However, when the [Status] is [Reserve], the field is blank.  
When the Volume Type is [Mainframe], [-] (hyphen) is displayed.
- \*1: Bitmap ratio can be changed during the copy session. The changed bitmap ratio will be applied from the next session. The session executes using the bitmap ratio from the start until copying is complete.

## A.6.2 Advanced Copy Status (OPC Session List) Screen

---

This screen displays the status of OPC sessions.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed OPC sessions differ depending on the current user account.

When logged on using a Total Administrator account, all the active OPC sessions are displayed. When logged on using a Resource Domain Administrator account, the active OPC sessions in the ETERNUS DX400/DX8000 series in which the copy source or copy destination volume is registered in the relevant Resource Domain, Shared Resource, or volumes that cannot be assigned to Resource Domains, are displayed.

When Resource Domains are not registered, all the active OPC sessions are displayed.

### ■ OPC Session List

- Displayed contents
    - SID  
The session ID is displayed in 0x0000 – 0xFFFF (hexadecimal).  
Clicking the [SID] link displays the [OPC Session Details] screen. However, when [Reserve] is displayed for [Status], a link is not displayed.
    - Type  
The type of the session is displayed.
      - OPC: OPC session
      - QOPC: QuickOPC session
      - SOPC: SnapOPC session
      - SOPC+: SnapOPC+ session
      - MON: Monitoring session (\*1)
- \*1: The Monitoring session is a pseudo SnapOPC or SnapOPC+ session, which is used to estimate the updated data size. Check the updated data size of the copy source before performing a SnapOPC or SnapOPC+ session from the [Completed Block]. Since the Monitoring session only exists on the copy source and not on the copy destination, a hyphen [-] is displayed in the [To Vol.] field.

- **Generation**  
The generation information of the SnapOPC+ session (n/m) is displayed.  
Clicking the [SID] link displays the session IDs for all the generations. However, when [SnapOPC+] is not selected for [Type], or [Reserve] is displayed for [Status], [-] is displayed.
  - n/m: Number of selected generation (1 – 8) / Total number of generations in the SnapOPC+ session (1 – 8)
- **Status**  
The status of the session is displayed.
  - Reserve: Session ID is reserved
  - Active: Operating normally
  - Error: Interruption due to error
- **Error Code**  
The error code of the session is displayed in 0x00 – 0xFF (hexadecimal).  
However, when the [Status] is [Reserve], the field is blank.
- **Phase**  
Operation status of the session is displayed.  
However, when the [Status] is [Reserve], the field is blank. In other cases, it is shown as follows.
  - QOPC
    - No Pair  
Duplicated pair of QOPC source and QOPC destination is not yet set up
    - Tracking & Copy  
Performing QOPC, or recording the information of the updated parts after the copy has started
    - Tracking  
Recording only the information of the updated parts after the QOPC has been completed
    - Copying  
After stopping recording the information of the updated parts, QOPC is copying the parts
  - MON
    - Copying: Copy is in progress
  - OPC, SOPC, SOPC+
    - [-] (hyphen) is displayed

Since OPC session, SOPC session, SOPC+ session, and the monitoring session only operate for copy, [-] (hyphen) is displayed here.
- **Time sec.**  
The elapsed time from starting the session is displayed. (unit: seconds)  
However, when the [Status] is [Reserve], the field is blank.
- **Volume Type**  
The type of the volume (Open, Mainframe) to be copied in the session is displayed.  
For monitoring session, [Open] is displayed.  
However, when the [Status] is [Reserve], the field is blank.

---

**Caution**



Only "Open Volume" is a target for QOPC (QuickOPC), SOPC (SnapOPC), and SOPC+ (SnapOPC+).

---

- From Vol.  
The Logical Volume number of the copy destination in the session is displayed in 0x0000 – 0x3FFF (hexadecimal).  
However, when the [Status] is [Reserve], the field is blank.
- To Vol.  
The Logical Volume number of the copy destination in the session is displayed in 0x0000 – 0x3FFF (hexadecimal).  
[-] (hyphen) is displayed for Monitoring sessions.  
However, when the [Status] is [Reserve], the field is blank.
- Total Block  
The total number of data blocks that are to be copied for each session is displayed in decimal.  
Units for each volume type are as follows:
  - Open Volume: Block
  - Mainframe Volume: TrackHowever, when the [Status] is [Reserve], the field is blank.
- Completed Block  
The number of data blocks that have already been copied for each session is displayed in decimal.  
Units for each volume type are as follows:
  - Open Volume: Block
  - Mainframe Volume: TrackUpdated data size of the copy source is displayed for Monitoring sessions.  
However, when the [Status] is [Reserve], the field is blank.
- Tracking Block  
The number of data blocks used to record the updated areas for each session is displayed in decimal.  
However, when the [Status] is [Reserve], the field is blank.
  - QOPC: The size of the data where the information of the updated parts has been recorded is displayed.
  - OPC, SOPC, SOPC+: Since the information of the updated parts has not been recorded, [0] is displayed.
  - MON: [-] (hyphen) is displayed

---

**Caution** 

Only [Tracking & Copy] and [Tracking] are the Phase that [Tracking Block] can be updated. When starting recopy from the host, [Tracking Block] is changed to [0] first, and then the size of the updated data from the time of starting recopying is displayed. When stopping tracking from the host, [Tracking Block] is changed to [0].

---

- SDP Used Block  
The number of data blocks allocated from the Snap Data Pool (SDP) to cover lack of Snap Data Volume (SDV) capacity for each session is displayed in decimal.  
However, when the [Status] is [Reserve], the field is blank.
  - SOPC, SOPC+: SDP capacity is displayed.
  - OPC, QOPC, MON: [-] (hyphen) is displayed.

- Resolution

The bitmap ratio of the session (x1/x2/x4/x8/x16) (\*1) is displayed.

However, when the [Status] is [Reserve], the field is blank.

When the Volume Type is [Mainframe], [-] (hyphen) is displayed.

\*1: Bitmap ratio can be changed during the copy session. The changed bitmap ratio will be applied from the next session. The session executes using the bitmap ratio from the start until copying completes.

### A.6.3 Advanced Copy Status (EC Session Details/OPC Session Details) Screen

---

When selecting the SID (session ID) in the [EC/OPC Session List] screen, the detailed screen appears in another window.

For information on each session other than the following, refer to [Advanced Copy Status (EC Session List)] screen or [Advanced Copy Status (OPC Session List)] screen.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the [EC Session Volume Information] or [OPC Session Volume Information] is displayed on the screen only when logged on using a Total Administrator account.

#### ■ EC Session List / OPC Session List

- Displayed contents

- Related SID

Except for the currently displayed session ID (SID) for SOPC+, the session IDs (SIDs) are displayed in order of earliest start up.

Clicking a [SID] link displays the SID details in another window.



**Caution** [Related SID] are only displayed for SOPC+ sessions.

#### ■ EC Session Volume Information / OPC Session Volume Information

- Displayed contents

- Copy source volumes

- From Vol. No.

The Logical Volume number (0x0000 – 0x3FFF) of the copy source volume in the relevant session is displayed in hexadecimal number.

- From Vol. Name

The volume name of the copy source volume in the relevant session is displayed within 16 characters.

If a volume name is not specified, the field is blank. When the copy source is the Mainframe Volume, [-] (hyphen) is displayed.

- **Resource Domain No.**  
The Resource Domain number (0x00 – 0x07) where the copy source volume in the relevant session is registered is displayed.  
If the copy source volume is a Shared Resource or Mainframe Volume, [-] (hyphen) is displayed.
- **Resource Domain Name**  
The Resource Domain name where the copy source volume in the relevant session is registered is displayed within 16 characters.  
If a Resource Domain name is not specified, the field is blank.  
If a copy source volume is a Shared Resource, [Share] is displayed. If the copy source volume is a Mainframe Volume, [-] (hyphen) is displayed.
- **Volume Type**  
The type of the copy source volume (Open or Mainframe) in the relevant session is displayed.  
[Open] is displayed for Monitoring sessions.

■ Copy destination volumes

- **To Vol. No.**  
The Logical Volume number (0x0000 – 0x3FFF) of the copy destination volume in the relevant session is displayed in hexadecimal number.  
[-] (hyphen) is displayed for Monitoring sessions.
- **To Vol. Name**  
The volume name of the copy destination volume in the relevant session is displayed within 16 characters.  
If a volume name is not specified, the field is blank. When the copy destination is the Mainframe Volume, [-] (hyphen) is displayed.  
When the relevant session is a Monitoring session, [-] (hyphen) is displayed.
- **Resource Domain No.**  
The Resource Domain number (0x00 – 0x07) to which the copy destination volume in the relevant session belongs is displayed.  
If the copy destination volume is a Shared Resource or Mainframe Volume, [-] (hyphen) is displayed.  
When the relevant session is a Monitoring session, [-] (hyphen) is displayed.
- **Resource Domain Name**  
The Resource Domain name to which the copy destination volume in the relevant session belongs is displayed within 16 characters.  
If a Resource Domain name is not specified, the field is blank.  
If a copy destination volume is a Shared Resource, [Share] is displayed. If the copy destination volume is a Mainframe Volume, [-] (hyphen) is displayed.  
When the relevant session is a Monitoring session, [-] (hyphen) is displayed.
- **Volume Type**  
The type of the copy destination volume (Open or Mainframe) in the relevant session is displayed.  
[-] (hyphen) is displayed for Monitoring sessions.

## ■ Extent Information

### ● Displayed contents

- Offset  
A copy number in specified range is displayed in 0 – 2048 (decimal number).
- Source LBA  
The copy source Start LBA (Logical Block Address) in the specified range is displayed in 16-digit hexadecimal.
- Destination LBA  
The copy destination Start LBA (Logical Block Address) in the specified range is displayed in 16-digit hexadecimal.
- Extent Block  
The number of data blocks in the specified copy range is displayed in decimal.  
Units for each volume type are as follows:
  - Open Volume: Block
  - Mainframe Volume: Track

## A.6.4 Advanced Copy Status (REC Session List) Screen

---

This screen displays the status of REC sessions.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed REC sessions differ depending on the current user account.

When logged on using a Total Administrator account, all the active REC sessions are displayed. When logged on using a Resource Domain Administrator account, the active REC sessions in the ETERNUS DX400/DX8000 series in which the copy source or copy destination volume is registered in the relevant Resource Domain, Shared Resource, or volumes that cannot be assigned to the Resource Domains, are displayed.

When Resource Domains are not registered, all the active REC sessions are displayed.

## ■ REC Session List

### ● Displayed contents

- SID  
The session ID (0x0000 – 0xFFFF) of this device is displayed in hexadecimal number. Clicking the [SID] link displays the [REC Session Details] screen. However, when [Reserve] is displayed for [Status], a link is not displayed.
- Remote SID  
The session ID (0x0000 – 0xFFFF) of another device which is remotely connected with this device is displayed in hexadecimal number.

- **Status**  
The status of the session is displayed.
  - Reserve: Session ID is reserved.
  - Active: Operating normally
  - Error: Interruption due to error
  - Suspend: Interruption by command from the host
  - Halt: The remote copy process cannot be performed, because of failure.
- **Error Code**  
The error code (0x00 – 0xFF) of the session is displayed in hexadecimal number.  
However, when the [Status] is [Reserve], the field is blank.
- **Phase**  
Operation status of the session is displayed.  
However, when the [Status] is [Reserve], the field is blank. In other cases, it is shown as follows.
  - No Pair: Duplicated pair of REC copy source and REC copy destination is not yet set up.
  - Copying: REC copy is in progress
  - Equivalent: After completing the copy processing, REC copy source and REC copy destination are duplicated, and equivalent status is maintained.
- **Time sec.**  
The elapsed time from starting the session is displayed. (unit: seconds)  
However, when the [Status] is [Reserve], the field is blank.
- **Volume Type**  
The type of the volume to be copied in the session (Open, Mainframe) is displayed.  
However, when the [Status] is [Reserve], the field is blank.
- **Role**  
In the relevant copy session, the role of this device is displayed.  
However, when the [Status] is [Reserve], the field is blank. In other cases, it is shown as follows.
  - P: Primary (Copy source)
  - S: Secondary (Copy destination)
- **From Vol.**  
The Logical Volume number of the copy source in the session is displayed in 0x0000 – 0x3FFF (hexadecimal).  
However, when the [Status] is [Reserve], the field is blank.
- **To Vol.**  
The Logical Volume number of the copy destination in the session is displayed in 0x0000 – 0x3FFF (hexadecimal).  
However, when the [Status] is [Reserve], the field is blank.
- **Total Block**  
The total number of data blocks that are to be copied for each session is displayed in decimal.  
Units for each volume type are as follows:
  - Open Volume: Block
  - Mainframe Volume: Track  
However, when the [Status] is [Reserve], the field is blank.

- **Completed Block**  
The number of data blocks that have already been copied for each session is displayed in decimal.  
Units for each volume type are as follows:
  - Open Volume: Block
  - Mainframe Volume: TrackHowever, when the [Status] is [Reserve], the field is blank.
- **Resolution**  
The bitmap ratio of the session (x1/x2/x4/x8/x16) (\*1) is displayed.  
However, when the [Status] is [Reserve], the field is blank.  
When the Volume Type is [Mainframe], [-] (hyphen) is displayed.  
\*1: Bitmap ratio can be changed during the copy session. The changed bitmap ratio will be applied from the next session. The session executes using the bitmap ratio from the start until copying is complete.

## A.6.5 Advanced Copy Status (REC Session Details) Screen

---

When selecting SID (session ID) in the [REC Session List] screen, the details screen appears in another window.

For REC session information, refer to [Advanced Copy Status (REC Session List)] screen.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the [REC Session Volume Information] is displayed on the screen only when logged on using a Total Administrator account.

### ■ REC Session Volume Information

#### ● Displayed contents

##### ■ Copy source volumes

- **From Vol. No.**  
The Logical Volume number (0x0000 – 0x3FFF) of the copy source volume in the relevant session is displayed in hexadecimal number.
- **From Vol. Name**  
When the role of the REC Session List is "P", the volume name of the copy source volume in the relevant session is displayed within 16 characters. If a volume name is not specified, the field is blank. If the copy source volume is a Mainframe Volume, [-] (hyphen) is displayed.  
When the role of the REC Session List is "S", [-] (hyphen) is displayed.
- **Resource Domain No.**  
When the role of the REC Session List is "P", the Resource Domain number (0x00 – 0x07) to which the copy source volume in the relevant session belongs is displayed. If the copy source volume is a Shared Resource or Mainframe Volume, [-] (hyphen) is displayed.  
When the role of the REC Session List is "S", [-] (hyphen) is displayed.

- **Resource Domain Name**  
When the role of the REC Session List is "P", the Resource Domain name to which the copy source volume in the relevant session belongs is displayed within 16 characters. If a Resource Domain name is not specified, the field is blank. If a copy source volume is a Shared Resource, [Share] is displayed. If the copy source volume is a Mainframe Volume, [-] (hyphen) is displayed.  
When the role of the REC Session List is "S", [-] (hyphen) is displayed.
- **Volume Type**  
The type of the copy source volume (Open or Mainframe) in the relevant session is displayed.

■ **Copy destination volumes**

- **To Vol. No.**  
The Logical Volume number (0x0000 – 0x3FFF) of the copy destination volume in the relevant session is displayed in hexadecimal number.
- **To Vol. Name**  
When the role of the REC Session List is "S", the volume name of the copy destination volume in the relevant session is displayed within 16 characters. If a volume name is not specified, the field is blank. When the copy destination is the Mainframe Volume, [-] (hyphen) is displayed.  
When the role of the REC Session List is "P", [-] (hyphen) is displayed.
- **Resource Domain No.**  
When the role of the REC Session List is "S", the Resource Domain number (0x00 – 0x07) to which the copy destination volume in the relevant session belongs is displayed. If the copy destination volume is a Shared Resource or Mainframe Volume, [-] (hyphen) is displayed.  
When the role of the REC Session List is "P", [-] (hyphen) is displayed.
- **Resource Domain Name**  
When the role of the REC Session List is "S", the Resource Domain name to which the copy destination volume in the relevant session belongs is displayed within 16 characters. If a Resource Domain name is not specified, the field is blank. If a copy destination volume is a Shared Resource, [Share] is displayed. If the copy destination volume is a Mainframe Volume, [-] (hyphen) is displayed.  
When the role of the REC Session List is "P", [-] (hyphen) is displayed.
- **Volume Type**  
The type of the copy destination volume (Open or Mainframe) in the relevant session is displayed.

■ **Detailed Information**

- **Displayed contents**
  - **Operation Mode**  
Operation mode of the session is displayed.
    - Sync: Synchronous Transfer Mode
    - Async Through: Asynchronous Through Mode
    - Async Stack: Asynchronous Stack Mode
    - Async Consistency: Asynchronous Consistency Mode

- **Recovery Mode**  
The recovery mode of the session is displayed.
  - Automatic: A mode to restart copying automatically when the REC copy path has recovered from abnormal status.
  - Manual: A mode not to restart copying automatically when the REC copy path has recovered from abnormal status.
- **Split Mode**  
The split mode of the relevant session is displayed.
  - Automatic: A mode in which Write I/O accesses to copy source are accepted when the copy path of REC is in abnormal status.
  - Manual: A mode in which Write I/O accesses to copy source are not accepted when the copy path of REC is in abnormal status. Specified sense information is sent to the host.
- **Remote Box ID**  
The identifier of another device which is remotely connected with this device is displayed.

#### ■ Extent Information

- **Displayed contents**
  - **Offset**  
A copy number in specified range is displayed in 0 – 2048 (decimal number).
  - **Source LBA**  
The copy source Start LBA (Logical Block Address) in the specified range is displayed in 16-digit hexadecimal.
  - **Destination LBA**  
The copy destination Start LBA (Logical Block Address) in the specified range is displayed in 16-digit hexadecimal.
  - **Extent Block**  
The number of data blocks in the specified copy range is displayed in decimal.  
Units for each volume type are as follows:
    - Open Volume: Block
    - Mainframe Volume: Track

### A.6.6 Advanced Copy Status (Advanced Copy Path Status) Screen

---

This screen displays the status of the path between the local and the selected remote devices.

#### ■ Box ID Information

- **Displayed contents**
  - **Local Box ID**  
Displays the Box ID of this device.
  - **Remote Box ID**  
The Box ID of the selected remote device is displayed.

■ Path information between devices

● Displayed contents

• Device CA information

- CM#  
The CM number where the CA is installed is displayed.
- CA#  
The CA number and the installed CA type (FCRA or iSCSI-RA) are displayed.
- Port#  
The port number in the CA is displayed.

• Remote CA information

- Mode  
Relevant port mode is displayed.
  - A: Auto (interactive)
  - I: Initiator (unidirectional transmission source) (\*1)
  - T: Target (unidirectional transmission destination) (\*1)
- WWN/iSCSI Name  
Remote device's World Wide Name (for FCRA), or iSCSI Name (for iSCSI-RA) is displayed.

• Status

The path status between the local device and the remote device is displayed.

- When the port of the local device is [Auto] or [Target (\*1)]
  - Normal  
The path status of the relevant port is normal.
  - Warning (R)  
The path status of the relevant port is unstable.  
Refer to "Path status codes and troubleshooting (Warning)" for troubleshooting methods when [Warning (R)] is displayed.
  - Warning (B)  
The bitmap ratio of the local device and the remote device differs in the port.  
Refer to "Path status codes and troubleshooting (Warning)" for troubleshooting methods when [Warning (B)] is displayed.
  - Error (status code)  
The path status of the relevant port is in error status.  
When the path status is [Error] and the suspected location can be specified, the location is displayed in ( ) with a code. Refer to the "Path status codes and troubleshooting" when these codes are displayed.
  - Unknown  
Unknown path configuration details are found in the device.  
When deleting a path configuration, delete the relevant information in the [Create Advanced Copy Information] menu. And then set the updated path configuration file to the device in the [Set Advanced Copy Path] menu.

- When the port of the local device is [Initiator (\*1)]
  - Normal  
All the paths between the relevant port and the remote devices are normal.
  - Error  
All the paths between the relevant port and the remote devices are in error status.  
The suspected error location cannot be specified. Refer to "Path status codes and troubleshooting".
  - Error (Partial)  
The path status between the relevant port and some remote device(s) is/are in error status.  
When checking the path status between the initiator and target devices, and there is a path between the local and remote devices, check the loopback. If there is more than one path between the local device and remote device, it will indicate that some of the loopback results cannot be received.
  - Unknown  
Unknown path configuration details are found in the device.  
When deleting a path configuration, delete the relevant information in the [Create Advanced Copy Information] menu. And then set the updated path configuration file to the device in the [Set Advanced Copy Path] menu.

\*1: Only when the connected destination is ETERNUS6000.

When there is more than one path from the port of the local device, and that port status is "Error" or "Error (Partial)", the path statuses are displayed together in the same cell.

## ■ Path status codes and troubleshooting

- Displayed contents
  - Auto, Target (\*1)
    - Error (M)  
Contact your maintenance engineer.
    - Error (D)  
Check if the path setting is correct.
    - Error (I)  
The suspected error location is a local device FCRA or iSCSI-RA. Check the FCRA or iSCSI-RA status for the local device.
    - Error (T)  
The suspected error location is a remote device FCRA or iSCSI-RA. Check the FCRA or iSCSI-RA status for the remote device.
    - Error (N)  
The suspected error location is a remote device. Check the status of the remote device.
    - Error (C)  
The suspected error location is the cable. Check the cable status.
    - Error (S)  
The suspected error location is the switch or switch setting. Check the switch status or the switch setting.

- Error (O)  
The suspected error location is an adapter of a device other than the local or remote devices. Check the status of other adapters on the same FC-AL.

- Initiator (\*1)

- Error  
The path from the remote device to the local device is in error status.  
If there is a path from the local device to the remote device, the status of paths from the remote device to the local device is checked using loopback. When all remote device (Target) paths are in [Error] status, the remote device to local device path checking operation is halted. In this case, even when the status of a remote device to local device path returns to [Normal], [Error] is still reported to the local device.

To ensure that the status of a remote device to local device path is checked correctly, change the path status of the remote device (Target) to [Normal] first, and then execute [Advanced Copy Status] again. If the [Error] status reappears, check the path from the remote device to the local device.

\*1: Only when the connected destination is ETERNUS6000.

## ■ Path status codes and troubleshooting (Warning)

### ● Displayed contents

- Warning (R)  
The path status between the local device and the remote device is unstable; link down occurs repeatedly or there is a communication failure between the devices. Check whether any of the following problems occurred.
  - 1 Check the FCRA or iSCSI-RA status for the local device or remote device.
  - 2 Check the FCRA, iSCSI-RA or any connecting devices such as switches, for errors.
  - 3 Check whether a failure is detected in a network cable.
  - 4 Check whether a network cable is in overload.
  - 5 Check whether the volume right before copying is updated frequently and the updated data size is increased.
- Warning (B)  
The bitmap ratio of the local device differs from that of the remote device.  
Use the [Set Advanced Copy Table Size] function to set the [ratio] of both devices to be the same. Remote Advanced Copy cannot be executed between the devices that have different bitmap ratio.

## A.7 Set Resource Domain

### A.7.1 Set Resource Domain (Create Resource Domains) Screen

On this screen, create the Resource Domains.

#### ■ Create Resource Domain Count

##### ● Setting item

###### • Create Resource Domain Count

Select the number of Resource Domains to be created from the list box. The default setting is "1".

#### ■ Create Resource Domain Information

##### ● Setting item

###### • Resource Domain Name

The same number of Name text boxes as the Resource Domains to be created are displayed. Enter the Resource Domain name for the relevant Resource Domain in the text box up to 16 characters in ASCII code (0x20 – 0x7E). Note that "<", ">", and "&" cannot be entered. The Resource Domain name can be omitted.

#### **Caution**

The existing Resource Domain name cannot be specified. Also, using the same Resource Domain name for multiple Resource Domains is not allowed.

## A.8 Assign Numerical Resource

### A.8.1 Assign Numerical Resource (Set Assignable Resources) Screen

On this screen, change the Assignable Resources of the selected Resource. The target Resources are "Logical Volume", "Host WWN", "iSCSI Host", "Affinity Group", "Host Response", and "Eco-mode Schedule".

#### ■ Resources Settings

##### ● Setting item

- Assignable Resources

Enter the maximum number of the relevant Resource in the text box in decimal numbers. The default setting is "0".

#### **Caution**

Smaller values than "Assigned Resources" can be specified in the "Assignable Resources". In this case, the ETERNUS DX400/DX8000 series can be used with an "Assigned Resources" value that is larger than the "Assignable Resources" value, but the relevant Resource cannot be added.

##### ● Displayed contents

- Resource Domain No.

The Resource Domain number (0x00 – 0x07) for the relevant Resource Domain is displayed.

- Resource Domain Name

The Resource Domain name for the relevant Resource Domain is displayed within 16 characters.

If a Resource Domain name is not specified, the field is blank.

- Assigned Resources

The number of Resources assigned to the relevant Resource Domain is displayed.

- Total Assignable Resources

The total number of "Assignable Resources" for each Resource Domain is displayed.

#### **Caution**

If the "Total Assignable Resources" value exceeds the "Maximum Assignable Resources" value, an error message appears. Enter the "Assignable Resources" value again to keep the "Total Assignable Resources" value smaller than the "Maximum Assignable Resources".

- Maximum Assignable Resources

The maximum number of Resources for the relevant Resource of each model is displayed.

## A.9 Assign Resources

### A.9.1 Assign Resources (Set RAID Group) Screen

---

On this screen, change the Assigned Domain for the RAID Groups.

#### ■ Assign Resource Domain (RAID Group)

Specify the range of the RAID Groups.

##### ● Setting item

###### • Set Range

###### - From: RAID Group#

Enter the first RAID Group number (3-digit hexadecimal) of the range in the text box.

###### - To: RAID Group#

Enter the last RAID Group number (3-digit hexadecimal) of the range in the text box.

###### - Resource Domain

Select the domain to assign the specified range of RAID Groups from the list box. The default setting is "Share".

###### • Share:

Assign to the Shared Resource.

###### • 0xXX:

Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

#### ■ RAID Group List

Specify the RAID Group individually.

##### ● Setting item

###### • Resource Domain

Select the domain to assign the RAID Groups from the list box. The default setting is "Share".

###### - Share:

Assign to the Shared Resource.

###### - 0xXX:

Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

- Displayed contents
  - RAID Group No.  
The relevant RAID Group number is displayed in 3-digit hexadecimal.
  - RAID Group Name  
The relevant RAID Group name is displayed within 16 characters.  
If a RAID Group name is not specified, the field is blank.
  - Resource Domain  
The domain information of the relevant RAID Group is displayed.  
Some RAID Groups cannot be assigned to the domain. Some RAID Groups can be assigned to the domain, but cannot change the Assigned Domain. A list box is displayed for a RAID Group where the Assigned Domain can be changed. For RAID Groups where the Assigned Domain cannot be changed, the following domain information is displayed in text format.  
[-] (hyphen) is displayed for the RAID Group which cannot be assigned to the domain.
    - Share:  
Assigned to the Shared Resource.
    - 0xXX:  
Assigned to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

**Caution**



RAID Groups created as the REC Disk Buffer cannot be assigned to the domain. [-] (hyphen) is displayed for the relevant RAID Groups.

## A.9.2 Assign Resources (Set TPP) Screen

On this screen, change the Assigned Domain for the TPP.

### ■ Assign Resource Domain (Thin Provisioning Pool)

Specify the range of the TPPs.

- Setting item
  - Set Range
    - From: TPP No.  
Enter the first TPP number (2-digit hexadecimal) of the range in the text box.
    - To: TPP No.  
Enter the last TPP number (2-digit hexadecimal) of the range in the text box.
  - Resource Domain  
Select the domain to assign the specified range of TPPs from the list box. The default setting is "Share".
    - Share:  
Assign to the Shared Resource.
    - 0xXX:  
Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

■ Thin Provisioning Pool List

Specify the TPP individually.

● Setting item

• Resource Domain

Select the domain to assign the TPPs from the list box. The default setting is "Share".

- Share:

Assign to the Shared Resource.

- 0xXX:

Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

● Displayed contents

• TPP No.

The pool number for the relevant TPP is displayed in 2-digit hexadecimal.

• TPP Name

The pool name for the relevant TPP is displayed within 16 characters.

If a Thin Provisioning Pool name is not specified, the field is blank.

• Resource Domain

The domain information of the relevant TPP is displayed.

A list box is displayed for a TPP where the Assigned Domain can be changed. For TPPs where the Assigned Domain cannot be changed, the following domain information is displayed in text format.

- Share:

Assigned to the Shared Resource.

- 0xXX:

Assigned to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

### A.9.3 Assign Resources (Set Host WWN) Screen

---

On this screen, change the Assigned Domain for the Host World Wide Name.

■ Assign Resource Domain (Host World Wide Name)

Specify the range of the Host World Wide Names.

● Setting item

• Set Range

- From: Host Table#

Enter the first Host Table number (0x000 – 0x3FF) of the range in the text box.

- To: Host Table#

Enter the last Host Table number (0x000 – 0x3FF) of the range in the text box.

- Resource Domain  
Select the domain to assign the specified range of Host World Wide Names from the list box. The default setting is "Share".
  - Share:  
Assign to the Shared Resource.
  - 0xXX:  
Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

■ Host World Wide Name List

Specify the Host World Wide Name individually.

● Setting item

- Resource Domain  
Select the domain to assign the Host World Wide Names from the list box. The default setting is "Share".
  - Share:  
Assign to the Shared Resource.
  - 0xXX:  
Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

● Displayed contents

- Host Table No.  
The identification number (0x000 – 0x3FF) for each Host World Wide Name is displayed.
- Host Table Name  
The Host Table name for the relevant Host World Wide Name is displayed within 16 characters.  
If a Host Table name is not specified, the field is blank.
- Resource Domain  
The domain information of the Host World Wide Name is displayed.  
A list box is displayed for a Host World Wide Name where the Assigned Domain can be changed. For Host World Wide Names where the Assigned Domain cannot be changed, the following domain information is displayed in text format.
  - Share:  
Assigned to the Shared Resource.
  - 0xXX:  
Assigned to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

## A.9.4 Assign Resources (Set iSCSI Host) Screen

---

On this screen, change the Assigned Domain for the iSCSI Host.

### ■ Assign Resource Domain (iSCSI Host)

Specify the range of the iSCSI Hosts.

#### ● Setting item

##### • Set Range

###### - From: Host Table#

Enter the first Host Table number (0x0000 – 0x03FF) of the range in the text box.

###### - To: Host Table#

Enter the last Host Table number (0x0000 – 0x03FF) of the range in the text box.

###### - Resource Domain

Select the domain to assign the specified range of iSCSI Hosts from the list box. The default setting is "Share".

###### • Share:

Assign to the Shared Resource.

###### • 0xXX:

Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

### ■ iSCSI Host List

Specify the iSCSI Host individually.

#### ● Setting item

##### • Resource Domain

Select the domain to assign the iSCSI Hosts from the list box. The default setting is "Share".

###### - Share:

Assign to the Shared Resource.

###### - 0xXX:

Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

#### ● Displayed contents

##### • Host Table No.

The identification number (0x0000 – 0x03FF) for each iSCSI Host is displayed.

##### • Host Table Name

The Host Table name for the relevant iSCSI Host is displayed within 16 characters. If a Host Table name is not specified, the field is blank.

- Resource Domain  
The domain information of the relevant iSCSI Host is displayed.  
A list box is displayed for an iSCSI Host where the Assigned Domain can be changed. For iSCSI Hosts where the Assigned Domain cannot be changed, the following domain information is displayed in text format.
  - Share:  
Assigned to the Shared Resource.
  - 0xXX:  
Assigned to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

## A.9.5 Assign Resources (Set Affinity Group) Screen

---

On this screen, change the Assigned Domain for the Affinity Groups.

### ■ Assign Resource Domain (Affinity Group)

Specify the range of the Affinity Groups.

#### ● Setting item

- Set Range
  - From: Affinity Group#  
Enter the first Affinity Group number (0x000 – 0x1FF) of the range in the text box.

#### **Caution**



The domain for Concatenated Affinity Group [0xXXX-0xYYY] is changed only when the first Affinity Group number [0xXXX] is included in the specified range.

- To: Affinity Group#  
Enter the last Affinity Group number (0x000 – 0x1FF) of the range in the text box.
- Resource Domain  
Select the domain to assign the specified range of Affinity Groups from the list box. The default setting is "Share".
  - Share:  
Assign to the Shared Resource.
  - 0xXX:  
Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

#### ■ Affinity Group List

Specify the Affinity Group individually.

##### ● Setting item

###### • Resource Domain

Select the domain to assign the Affinity Group from the list box. The default setting is "Share".

###### - Share:

Assign to the Shared Resource.

###### - 0xXX:

Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

##### ● Displayed contents

###### • Affinity Group No.

The identification number (0x000 – 0x1FF) for the relevant Affinity Group is displayed.

###### - Not Concatenated: 0xXXX

###### - Concatenated: 0xXXX – 0xYYY

###### • Affinity Group Name

The relevant Affinity Group name is displayed within 16 characters.

If an Affinity Group name is not specified, the field is blank.

###### • Resource Domain

The domain information for the relevant Affinity Group is displayed.

A list box is displayed for an Affinity Group where the Assigned Domain can be changed. For Affinity Groups where the Assigned Domain cannot be changed, the following domain information is displayed in text format.

###### - Share:

Assigned to the Shared Resource.

###### - 0xXX:

Assigned to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

## A.9.6 Assign Resources (Set Host Response) Screen

---

On this screen, change the Assigned Domain for the Host Response.

#### ■ Assign Resource Domain (Host Response)

Specify the range of the Host Responses.

##### ● Setting item

###### • Set Range

###### - From: Host Response#

Enter the first Host Response number (0x001 – 0x0FF) of the range in the text box.

**Caution**



The domain for "Host Response No.: 0x000 (Default)" is fixed to "Share". Note that the domain for "Host Response No.: 0x000 (Default)" cannot be changed to other domains even if it is included in the specified range.

- **To: Host Response#**  
Enter the last Host Response number (0x001 – 0x0FF) of the range in the text box.
- **Resource Domain**  
Select the domain to assign the specified range of Host Responses from the list box. The default setting is "Share".
  - **Share:**  
Assign to the Shared Resource.
  - **0xXX:**  
Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

■ **Host Response List**

Specify the Host Response individually.

● **Setting item**

- **Resource Domain**  
Select the domain to assign the relevant Host Response from the list box.
  - **Share:**  
Assign to the Shared Resource.
  - **0xXX:**  
Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

● **Displayed contents**

- **Host Response No.**  
The identification number (Default, 0x001 – 0x0FF) for the relevant Host Response is displayed.
- **Host Response Name**  
The relevant Host Response name is displayed within 16 characters. If a Host Response name is not specified, the field is blank.
- **Resource Domain**  
The domain information for the relevant Host Response is displayed. A list box is displayed for a Host Response where the Assigned Domain can be changed. For Host Responses where the Assigned Domain cannot be changed, the following domain information is displayed in text format.
  - **Share:**  
Assigned to the Shared Resource.
  - **0xXX:**  
Assigned to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

**Caution**



The domain for "Host Response No.: 0x000 (Default)" is fixed to "Share". Note that the domain for "Host Response No.: 0x000 (Default)" cannot be changed to other domains.

■ (Supplement) Changing domain of a Host Response

The following is the supplemental explanations for changing the domain of the Host Response.

- Even when the Assigned Domain of a Host World Wide Name to which the relevant Host Response belongs is changed, the Assigned Domain of the Host Response remains the same.
- Even when the Assigned Domain of an iSCSI Host to which the relevant Host Response belongs is changed, the Assigned Domain of the Host Response remains the same.
- An Assigned Domain for the relevant Host Response can be changed by using the procedure described in the "Assigning Host Response" of the [Assign Resources] function.  
For the Host Response where the Assigned Domain can be changed, a list box is displayed in the Resource Domain field of the Host Response List. For Host Responses where the Assigned Domain cannot be changed, domain information is displayed in text format.

In the Resource Domain field of the Host Response List, the domains that can be changed are displayed as selection items. Selection items differ depending on the Assigned Domain of the Host World Wide Name to which the relevant Host Response belongs and the Assigned Domain of the iSCSI Hosts to which the relevant Host Response belongs.

● Examples of cases when domains for Host Responses can be changed

Domain of Host Response	Domains of the Host World Wide Names for the Host Response to be changed or Domains of the iSCSI Hosts for the Host Response to be changed	
	The same Resource Domain is assigned for all (*1), or The same Resource Domains + Share (*2)	Mixed (*3)
Share	Domain_1, Share	"Share" is displayed in the text format. (Cannot be changed)
Domain_1	Domain_1, Share	Domain_1, Share
Domain_2	Domain_1, Domain_2, Share	Domain_2, Share
Domain_3	Domain_1, Domain_3, Share	Domain_3, Share
Domain_x	Domain_1 for Host World Wide Name and iSCSI Host + Domain_x for the Host Response + Share	Domain_x for Host Response + Share

\*1: Example:

Domain\_1 is assigned for all the Host World Wide Names or iSCSI Hosts

\*2: Example:

Some Host World Wide Names or iSCSI Hosts are assigned to Domain\_1, and the other Host World Wide Names or iSCSI Hosts are assigned to Share

- \*3: Example 1:  
Some Host World Wide Names or iSCSI Hosts are assigned to Domain\_1, and the other Host World Wide Names or iSCSI Hosts are assigned to Domain\_2  
Example 2:  
Some Host World Wide Names or iSCSI Hosts are assigned to Domain\_1, some Host World Wide Names or iSCSI Hosts are assigned to Domain\_2, and the other Host World Wide Names or iSCSI Hosts are assigned to Share
- Domains in a cell where the "Domain of Host Response" and "Domains of the Host World Wide Names for the Host Response to be changed or Domains of the iSCSI Hosts for the Host Response to be changed" intersect indicates that the domain can be changed (\*1).
- \*1: Domains to be assigned when using the Set Range for Resource Domain, or domains displayed as selection items in the list box of Resource Domain in the Host Response List.

### A.9.7 Assign Resources (Set Eco-mode Schedule) Screen

---

On this screen, change the Assigned Domain for the Eco-mode schedule.

#### ■ Assign Resource Domain (Eco-mode Schedule)

Specify the range of the Eco-mode schedules.

##### ● Setting item

##### • Set Range

##### - From: Eco-mode Schedule#

Enter the first Eco-mode schedule number (0x00 – 0x3F) of the range in the text box.

##### - To: Eco-mode Schedule#

Enter the last Eco-mode schedule number (0x00 – 0x3F) of the range in the text box.

##### - Resource Domain

Select the domain to assign the specified range of Eco-mode schedule from the list box. The default setting is "Share".

##### • Share:

Assign to the Shared Resource.

##### • 0xXX:

Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

## ■ Eco-mode Schedule List

Specify the Eco-mode schedule individually.

### ● Setting item

- Resource Domain

Select the domain to assign the relevant Eco-mode schedule from the list box. The default setting is "Share".

- Share:

Assign to the Shared Resource.

- 0xXX:

Assign to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

### ● Displayed contents

- Eco-mode Schedule No.

The relevant Eco-mode schedule number (0x00 – 0x3F) is displayed.

- Eco-mode Schedule Name

The relevant Eco-mode schedule name is displayed within 16 characters.  
If an Eco-mode schedule name is not specified, the field is blank.

- Resource Domain

The domain information for the relevant Eco-mode schedule is displayed.

A list box is displayed for an Eco-mode schedule where the Assigned Domain can be changed. For Eco-mode schedules where the Assigned Domain cannot be changed, the following domain information is displayed in text format.

- Share:

Assigned to the Shared Resource.

- 0xXX:

Assigned to the domain with the number "0xXX". When the domain has a name, the name is displayed in "0xXX:Name" format.

## A.10 Create RAID Group

### A.10.1 Create RAID Group (Initial) Screen

Set the information of the new RAID Group to be created.

#### ■ RAID Group information to be created

##### ● Displayed contents

- RAID Group#  
RAID Group number allocated at creation is displayed in 3-digit hexadecimal.  
The RAID Group number will be allocated among the vacant numbers in ascending order.

##### ● Setting item

- RAID Group Name  
In the text box, enter the name to assign for the RAID Group up to 16 characters in ASCII code (0x20 – 0x7E).  
RAID Group name can be omitted. The initial status is blank.



Setting an existing RAID Group name is not allowed.

##### ● RAID Level

Select a RAID level from the list box.

For the required number of disks for each RAID level, refer to [Supported RAID Group configuration](#).

- RAID0
- RAID1 (Default)
- RAID1+0
- RAID5
- RAID6

##### ● Resource Domain

Select Resource Domain (0x00 – 0x07) to create RAID Groups from the list box.

Shared Resources (Share) and Resource Domains registered in the ETERNUS DX400/DX8000 series are displayed as the selection items in the list box. If a Resource Domain name has been registered, the Resource Domain name is also displayed. The default setting is "Share".



When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the "Resource Domain" item is not displayed.

- **Controlling CM**  
Valid CM-CPU numbers ([CM#x-CPU#y]. Installed CM-CPU in normal status only) installed in the device and [Auto] are displayed on the list box. Select Controlling CM-CPU number to control the RAID Group from the list box. The default setting is "Auto".  
If [Auto] is selected as the Controlling CM, Controlling CM and CPU will be automatically assigned. Refer to [Allocating the controlling CM-CPU when selecting "Auto"](#) for the controlling CM-CPU.
- **DVCF Mode**  
Set the DVCF (Dual Volume Control Facility) mode using the ON or OFF (Default) radio button. DVCF should only be ON when connecting to a GlobalServer host.



**Caution**

The [DVCF Mode] radio button is displayed only if [GS License] is registered. And, it can be set [ON] only for RAID1. Mainframe Volumes or MVV Volumes can only be created in the RAID Group with DVCF mode set [ON (enabled)]. Open Volume (including SDV and SDPV) cannot be created.

■ Supported RAID Group configuration

- For ETERNUS DX410/DX440

RAID Level		Number of configuration disks
RAID0		2 – 16
RAID1	RAID1(1+1)	2
RAID1+0	RAID1+0(2+2) – RAID1+0(16+16)	Even numbers 4 – 32
RAID5	RAID5(2+1) – RAID5(15+1)	3 – 16
RAID6	RAID6(3+2) – RAID6(14+2)	5 – 16

- For ETERNUS DX8100/DX8400/DX8700

RAID Level		Number of configuration disks
RAID0		2 – 16
RAID1	RAID1(1+1)	2
RAID1+0	RAID1+0(2+2) – RAID1+0(16+16)	Even numbers 4 – 32
RAID5	RAID5(3+1), RAID5(7+1)	4 or 8
RAID6	RAID6(6+2), RAID6(14+2)	8 or 16

■ Allocating the controlling CM-CPU when selecting "Auto"

When you have selected "Auto" for the controlling CM, the controlling CM-CPU to be allocated will be decided by the RAID Group number.

The following are the relationships between the RAID Group number and the controlling CM-CPU. (All CM-CPU are installed and in normal status.)

Number of CMs (CPUs)	The remainder created by dividing RAID Group number (decimal) by "16"	Controlling CM-CPU to be allocated
8CM (16CPU)	0	CM#0 CPU#0
	1	CM#7 CPU#1
	2	CM#1 CPU#0
	3	CM#6 CPU#1
	4	CM#2 CPU#0
	5	CM#5 CPU#1
	6	CM#3 CPU#0
	7	CM#4 CPU#1
	8	CM#4 CPU#0
	9	CM#3 CPU#1
	10	CM#5 CPU#0
	11	CM#2 CPU#1
	12	CM#6 CPU#0
	13	CM#1 CPU#1
	14	CM#7 CPU#0
	15	CM#0 CPU#1

Number of CMs (CPUs)	The remainder created by dividing RAID Group number (decimal) by "12"	Controlling CM-CPU to be allocated
6CM (12CPU)	0	CM#0 CPU#0
	1	CM#5 CPU#1
	2	CM#1 CPU#0
	3	CM#4 CPU#1
	4	CM#2 CPU#0
	5	CM#3 CPU#1
	6	CM#3 CPU#0
	7	CM#2 CPU#1
	8	CM#4 CPU#0
	9	CM#1 CPU#1
	10	CM#5 CPU#0
	11	CM#0 CPU#1

Number of CMs (CPUs)	The remainder created by dividing RAID Group number (decimal) by "8"	Controlling CM-CPU to be allocated
4CM (8CPU)	0	CM#0 CPU#0
	1	CM#3 CPU#1
	2	CM#1 CPU#0
	3	CM#2 CPU#1
	4	CM#2 CPU#0
	5	CM#1 CPU#1
	6	CM#3 CPU#0
	7	CM#0 CPU#1
Number of CMs (CPUs)	The remainder created by dividing RAID Group number (decimal) by "4"	Controlling CM-CPU to be allocated
2CM (4CPU)	0	CM#0 CPU#0
	1	CM#1 CPU#1
	2	CM#1 CPU#0
	3	CM#0 CPU#1
Number of CMs (CPUs)	The remainder created by dividing RAID Group number (decimal) by "2"	Controlling CM-CPU to be allocated
2CM (2CPU)	0	CM#0 CPU#0
	1	CM#1 CPU#0

**Caution**



If there is a CM-CPU that is uninstalled or not in normal status, controlling CM-CPU is allocated to equalize the load with other available CM-CPU.

## A.11 Create Logical Volume

### A.11.1 Create Logical Volume (Create Logical Volume) Screen

On this screen, specify the type and number of volume(s) to create in the selected RAID Group. If volume(s) have been created in the selected RAID Group, a list of the volume(s) is displayed. The volume type that can be created differs depending on the volume condition and the type of existing volume in the RAID Group. On this screen, only the volume types that can be created are displayed.

#### Caution

There are cases where the maximum capacity Open Volume can NOT be created, depending on the RAID Level and the amount of "free space".

#### ■ Creating Volumes (ETERNUS DX8100/DX8400/DX8700)

Volume condition			Possible volume type to be created						
			Open SDV	Mainframe			MVV		
				F6427G	F6427H	F6427K	MVV(G)	MVV(H)	MVV(K)
Not Created (*1)	RAID1	DVCF: OFF	OK	OK	OK	OK	OK	OK	OK
		DVCF: ON	—	OK	OK	OK	OK	OK	OK
	RAID0 RAID1+0 RAID5 RAID6		OK	—	—	—	—	—	—
Created	Open, SDV, SDPV, Open Concatenation		OK	—	—	—	—	—	—
	Mainframe	F6427G	—	OK	—	—	OK	—	—
		F6427H	—	—	OK	—	—	OK	—
		F6427K	—	—	—	OK	—	—	OK
	MVV MVV Concatenation	MVV(G)	—	OK	—	—	OK	—	—
		MVV(H)	—	—	OK	—	—	OK	—
		MVV(K)	—	—	—	OK	—	—	OK

OK: Creation allowed

—: Creation not allowed

\*1: Open volume and Snap Data volume cannot be created in a RAID Group which is set to RAID1 with DVCF mode [ON (Enabled)] by the [Create RAID Group] function.  
When "GS License" is not registered in the device, Mainframe Volumes, MVV Volumes, and MVV Concatenated Volumes cannot be created.

## ■ Creating Volumes (ETERNUS DX410/DX440)

Only Open Volumes and Snap Data Volumes can be created.

## ■ Volume number creation rules

There are two types of volume numbers: Open volume numbers and Mainframe volume numbers.

The volume numbers are created with the following rules.

- Open volume numbers (starting from Logical Volume#0x0000)
  - Open volume numbers are used when creating "Open", "SDV", "SDPV", "MVV", "MVV Concatenated", or "TPV" type volumes. The volume number is allocated for each volume from the smallest unused number in ascending order.
  - Open volume numbers are used for work volumes when performing RAID Migration. The volume number is allocated from the smallest unused number in ascending order. After completing the RAID Migration, the allocated volume number returns to unused state.
  - Open volume numbers are used for the concatenation destination volume when performing LUN Concatenation. The smallest unused volume number is allocated regardless of the number of volumes to be concatenated. After completing the LUN Concatenation, the allocated volume number returns to unused state. The concatenation destination volume is displayed as "TmpOpen" in the [Volume List] menu screen during the LUN Concatenation.
  - Open volume numbers are used when creating REC Disk Buffers. The volume number is allocated for each REC Disk Buffer from the smallest unused number in ascending order.
- Mainframe volume numbers (starting from Logical Volume#0x0000)
  - Mainframe volume numbers are used when creating "Mainframe" or "MVV" type volumes. The volume number is allocated for each volume from the smallest unused number in ascending order.
  - Mainframe volume numbers are used when creating "MVV Concatenation" type volumes. The same number of volume numbers as the volumes to be concatenated (when concatenating three volumes, three volume numbers) are allocated from the smallest unused number in ascending order. When creating multiple MVV Concatenated volumes, the number of volume numbers to be allocated is determined with the following computation: (number of volumes to be concatenated) × (number of MVV Concatenated volumes to be created).

The following table shows the volume numbers for MVV Concatenated volumes.

Mainframe	Open
0x0000	0x0000(1/3)
0x0001	0x0000(2/3)
0x0002	0x0000(3/3)

## ■ Naming rules when creating multiple volumes

When creating multiple volumes at the same time, the volume name is determined in the following rules.

- For the first volume to be created, the volume name specified in the Name text box of Logical Volume Name field is used. For other volumes, 5-digit decimal number (00001 – 99999) is added to the volume name specified in the Name text box. Consecutive numbers are added for volumes created in one operation (volumes created by clicking the [Add] button once).

(Example)

Conditions when clicking the [Add] button

Name: Volume

Number of volumes to be added: 100

Volume name after clicking the [Add] button

First volume: Volume

Second volume: Volume00001

Third volume: Volume00002

•

•

•

100th volume: Volume00099

- Up to 16 characters can be used for a volume name. If the volume name exceeds 16 characters because of additional numbers, the number will be added after the first 11 characters of the volume name. The last 5 characters of the specified volume name will be deleted.

(Example)

Conditions when clicking the [Add] button

Name: VolumeName\_ABCDE

Number of volumes to be added: 100

Volume name after clicking the [Add] button

First volume: VolumeName\_ABCDE

Second volume: VolumeName\_00001

Third volume: VolumeName\_00002

•

•

•

100th volume: VolumeName\_00099

- The same volume name as an existing volume cannot be used. If the same volume name as the specified name or a volume name with additional numbers already exists, ETERNUS DX400/DX8000 series adds "5-digit decimal number plus 1" value after the volume name. ETERNUS DX400/DX8000 series adds one (+1) to the number after the volume name until the name becomes unique value.

(Example)

Conditions when clicking the [Add] button

Name: VolumeName\_ABCDE

Number of volumes to be added: 3

Existing volume name: VolumeName\_ABCDE, VolumeName\_00002

Volume name after clicking the [Add] button

First volume: VolumeName\_00001

Second volume: VolumeName\_00003

Third volume: VolumeName\_00004

## ■ Setting items for volume creation

- Logical Volume

- Checkbox

Select the checkbox of the [Free] field for the volumes to create.

---

**Caution**



Only one checkbox can be checked. Selecting multiple "Free" space and creating a volume is impossible.

---

- Logical Volume Name

- Name

In the text box, enter the name to assign for the Logical Volume up to 16 characters in ASCII code (0x20 – 0x7E). Volume name can be omitted. The default status is blank.

---

**Caution**



- The same volume name as an existing volume cannot be used.
  - Names cannot be specified for the Mainframe Volumes.
- 

- Volume Type

- Radio button

Select a volume type (Mainframe, MVV, MVV Concatenation, Open, SDV) to create using the radio buttons.

---

**Caution**



Only the setting items for the volume types which can be created are displayed.

---

- Mainframe

- Format Type

Select a format type for Mainframe Volume (F6427G, F6427H, F6427K) from the list box.

---

**Caution**



Enabled when [Mainframe] is selected by radio button.

---

- MVV

- Format Type

Select a format type for MVV Volume (MVV (G), MVV (H), MVV (K)) from the list box.

---

**Caution**



Enabled when [MVV] is selected by radio button.

---

- MVV Concatenation

- Format Type

Select a format type for MVV Concatenation (MVV (G), MVV (H), MVV (K)) from the list box.

- Number of Concatenation Volumes  
Enter the number of concatenated MVV Volumes.  
Set a volume concatenation number from 2 (Default) to 16.



Enabled when [MVV Concatenation] is selected by radio button.

- Open
  - Capacity  
Enter the capacity (MB) of the Open Volume to create in the text box.  
Set the capacity from 24 to 8,388,607(MB).



Enabled when [Open] is selected by radio button.

- SDV
  - Capacity  
Enter the capacity of the Snap Data volume to be created (in MBs) in the text box.  
Set the size smaller than the copy source capacity from 24 to 8,388,607(MB).  
Capacity + 0.1 (%) of the copy source capacity is secured in the device. The secured capacity will be displayed in [Allocated Capacity] of this screen. The 0.1 (%) of the copy source indicates the capacity when the Snap Data volume is in the control information area.
  - Virtual Capacity  
Enter copy source volume capacity of the SnapOPC or SnapOPC+ with MB unit to the text box.  
Set the capacity from 64 to 8,388,607(MB).



This is enabled when "SDV" is selected by the radio button.

- Number of volumes  
Enter the number of volumes selected by radio button in the text box.  
Refer to "The maximum number of volumes for each RAID Group" for the maximum number of volumes for each volume type and each disk drive type.  
Set the number of volumes to be created from 1 (Default) to 128.
- Create as an encrypted volume
  - Checkbox  
To register the created volume being encrypted, check this box.



The checkbox is displayed when the encryption mode is enabled.

■ The maximum number of volumes for each RAID Group

● For Open Volumes:

Volume types	Disk drive type								
	200GB (SSD) (*1)	400GB (SSD) (*1)	300GB	450GB	600GB	500GB (S) (*2)	750GB (S) (*2)	1TB (S) (*2)	2TB (S) (*2)
Open + SDV + SDPV + TPV	128	128	128	128	128	128	128	128	128

\*1: "200GB (SSD)" and "400GB (SSD)" are Solid State Drives.

\*2: "500GB (S)", "750GB (S)", "1TB (S)", and "2TB (S)" are Nearline SATA disk drives.

● For Mainframe Volumes:

Volume types	Disk drive type						
	73GB (SSD) (*1)	146GB (SSD) (*1)	200GB (SSD) (*1)	36GB	73GB	146GB	300GB
Mainframe (F6427G) + MVV (G)	48	96	128	24	48	96	128
Mainframe (F6427H) + MVV (H)	32	64	101	16	32	64	128
Mainframe (F6427K) + MVV (K)	24	48	67	12	24	48	96

\*1: "73GB (SSD)", "146GB (SSD)", and "200GB (SSD)" are Solid State Drives.

■ Cautions for Open volume creation

When creating multiple volumes in a RAID group, the full User Capacities are not always secured. Logical Volume sizes, which are set in MB, must be exact multiples of the base size in order to fully utilize the available user capacity.

Setting the Logical Volume size to any multiple of the applicable "Lowest exact MB multiple of the base size" value shown in the following table will allow the available capacity to be fully used.

RAID level		Lowest exact MB multiple of the base size
RAID1	1+1	1
RAID1+0	2+2	1
	3+3	3
	4+4	1
	5+5	5
	6+6	3
	7+7	7
	8+8	1
	9+9	9
	10+10	5
	11+11	11
	12+12	3
	13+13	13

RAID level		Lowest exact MB multiple of the base size
RAID1+0	14+14	7
	15+15	15
	16+16	1
RAID5	2+1	1
	3+1	3
	4+1	1
	5+1	5
	6+1	3
	7+1	7
	8+1	1
	9+1	9
	10+1	5
	11+1	11
	12+1	3
	13+1	13
	14+1	7
	15+1	15
RAID6	3+2	3
	4+2	1
	5+2	5
	6+2	3
	7+2	7
	8+2	1
	9+2	9
	10+2	5
	11+2	11
	12+2	3
	13+2	13
	14+2	7

Calculated as 1TB=1,024GB, 1GB=1,024MB.

## A.11.2 Create Logical Volume (Create Thin Provisioning Volume) Screen

Create the Thin Provisioning Volumes in the selected Thin Provisioning Pool.

- Displayed contents
  - TPP Free  
The free capacity of the selected Thin Provisioning Pool is displayed in MB.  
When the device is in the "Not Ready" status, [?] is displayed.
  - TPV Free  
The capacity of Thin Provisioning Volumes that can be created in the ETERNUS DX400/DX8000 series is displayed in MB.
  - Current Domain Used/Assignable  
The usage of resources in the Resource Domain to be used for creating volumes is displayed. [Assignable] indicates the number of assignable (the maximum number of) resources of the relevant Resource Domain. [Used] indicates the number of used resources in the relevant Resource Domain.

### Caution

When selecting the Thin Provisioning Pool which is assigned to the Shared Resource Domain [Share] in the [Create Logical Volume (Select Pool)] screen, or no Resource Domains are registered in the ETERNUS DX400/DX8000 series, the [Current Domain Used/Assignable] is not displayed.

- All Domains Used/Max  
The usage of resources to be used for creating volumes is displayed. [Max] indicates the maximum number of volumes for each model. [Used] indicates the number of used resources. When using the Thin Provisioning functions or LUN Concatenated functions, the number of registered (including to be registered) volumes and number of "Used" volumes may not match.

### Caution

When selecting the Thin Provisioning Pool which is assigned to the Shared Resource Domain [Share] in the [Create Logical Volume (Select Pool)] screen, or no Resource Domains are registered in the ETERNUS DX400/DX8000 series, the [All Domains Used/Max] is displayed as [Used/Max].

- Setting item
  - Name  
In the text box, enter the name to assign for the Thin Provisioning Volume up to 16 characters in ASCII code (0x20 – 0x7E).  
Volume name can be omitted.  
When creating multiple Thin Provisioning Volumes at the same time, refer to [Naming rules when creating multiple volumes](#) for details about volume names.

### Caution

An existing volume name cannot be specified.

- **TPV: Capacity**  
Enter the capacity of the Thin Provisioning Volume to be created (in MB) in the text box.  
Specify the capacity between 24 – 33,554,432(MB).  
  
Capacity ≤ Free
- **Number of volumes**  
Enter the number of Thin Provisioning Volumes to be created.  
Set the number of Thin Provisioning Volumes to be created from 1 (Default) to 128.  
  
When creating a Thin Provisioning Volume, refer to [Volume number creation rules](#) for details about volume numbers.

## A.12 Set Snap Data Pool

### A.12.1 Set Snap Data Pool (SDPV List) Screen

In this screen, Snap Data Pool Information and the list of the SDPV Logical Volumes are displayed. Select the link of the operation to be used.

- Create SDPV  
Click the [Create SDPV] link to create SDPV.



When the maximum number of volumes has already been created in the device, the [Create SDPV] link does not appear.

- Delete SDPV  
Click the [Delete SDPV] link to delete SDPV.



If SDPV is not registered, the [Delete SDPV] link is not displayed.

- Change SDPE  
Click the [Change SDPE] link to change SDPE.

#### ■ Snap Data Pool Information

##### ● Displayed contents

- Total Capacity  
The total Snap Data Pool (SDP) capacity in the ETERNUS DX400/DX8000 series is displayed (in GB).  
$$\text{Total Capacity (GB)} = \text{"Total Capacity" of [SDP Information for Non-encrypted Volumes]} + \text{"Total Capacity" of [SDP Information for Encrypted Volumes]}$$
- Available Capacity  
The SDP capacity that is available to create SDPV (between 0 – 65536GB) is displayed, and varies according to the value of the SDPE setting.



- SDPV capacity that is Scheduled for Deletion is not included in the "Available Capacity".
- When creating an SDPV, free space (Free) larger than the volumes to be created is required.

- SDPE  
The size (1GB, 2GB, or 4GB) of the extra capacity areas allocated by the ETERNUS DX400/DX8000 series is displayed.

## ■ SDP Information for Non-encrypted Volume

### ● Displayed contents

- Total Capacity

The non-encrypted Snap Data Pool (SDP) capacity (total capacity of non-encrypted SDPV) is displayed (in GB).

- Used Capacity

The usage of non-encrypted SDP capacity (total capacity of SDPE allocated to non-encrypted SDV) is displayed (in GB and as a percentage ratio).

Used Capacity (GB) = "Host" value of [Used Capacity Detail] +

"Copy" value of [Used Capacity Detail]

Used Capacity (%) =  $100 \times \text{Used Capacity (GB)} / \text{Total Capacity (GB)}$  (Rounded down)

- Used Capacity Detail

- Host:

The total capacity of SDPE allocated to non-encrypted SDV whose capacity was exhausted by data writes from the host is displayed (in GB).

- Copy:

The total capacity of SDPE allocated to non-encrypted SDV whose capacity was exhausted by copied SnapOPC or SnapOPC+ data is displayed (in GB).

## ■ SDP Information for Encrypted Volume

### ● Displayed contents

- Total Capacity

The encrypted Snap Data Pool (SDP) capacity (total capacity of encrypted SDPV) is displayed (in GB).

- Used Capacity

The usage of encrypted SDP capacity (total capacity of SDPE allocated to encrypted SDV) is displayed (in GB and as a percentage ratio).

Used Capacity (GB) = "Host" value of [Used Capacity Detail] +

"Copy" value of [Used Capacity Detail]

Used Capacity (%) =  $100 \times \text{Used Capacity (GB)} / \text{Total Capacity (GB)}$  (Rounded down)

- Used Capacity Detail

- Host:

The total capacity of SDPE allocated to encrypted SDV whose capacity was exhausted by data writes from the host is displayed (in GB).

- Copy:

The total capacity of SDPE allocated to encrypted SDV whose capacity was exhausted by copied SnapOPC or SnapOPC+ data is displayed (in GB).

## ■ Logical Volume List

Logical Volume list is displayed only when the SDPV is already registered in the ETERNUS DX400/DX8000 series.

### ● Displayed contents

- Volume Type

The volume type "SDPV" is displayed.

Click the [SDPV] link to display the list of copy sessions and SDVs using the relevant SDPV.

- SDPE (GB)

The SDPE size (1GB, 2GB, or 4GB) for each SDPV is displayed.

"SDPE" is a unit of allocation to assign the space to the SDV whose capacity was shortened.

Refer to ["A.5.1 Volume List \(Initial\) Screen" \(page 682\)](#) for other Logical Volume List items.

## A.12.2 Set Snap Data Pool (Create SDPV) Screen

---

On this screen, specify the capacity and number of SDPV(s) to create in the selected RAID Group. If volume(s) have been created in the selected RAID Group, a list of the volume(s) is displayed.


## ■ RAID Group Information

### ● Setting item

- Checkbox

Select the checkbox of the [Free] field for the SDPV(s) to create. When deleting the SDPV added in this screen, select the [SDPV] checkbox.

---

**Caution**  When creating SDPV(s), only one [Free] space can be selected.


---

### ● Displayed contents

- [SDPV] link

Displays the list of copy sessions and SDVs that use the SDPV.

---

**Caution**  The [SDPV] link is displayed only for the existing SDPV.

---

## ■ SDPV number creation rules

SDPV volume numbers are allocated from the smallest unused Open Volume numbers available (starting from Logical Volume#0x0000) in ascending order.

## ■ Setting Items for Creating SDPV

### ● Setting item

#### • Capacity of volumes

Enter a value between 1 and 2,048 as the size in GB of the SDPV(s) that are to be created.

#### **Caution**

Refer to ["Cautions for Open volume creation" \(page 725\)](#) in ["A.11.1 Create Logical Volume \(Create Logical Volume\) Screen" \(page 720\)](#) to use user capacity in the RAID group without unused capacity.

#### • Number of volumes

Enter a value between 1 (Default) and 128 as the number of SDPV(s) that are to be created.

#### • [Create as an encrypted volume.] checkbox

To register the created SDPV being encrypted, check this box.

#### **Caution**

The checkbox is displayed when the encryption mode is enabled.

### ● Displayed contents

#### • SDPE

The size (1GB, 2GB, or 4GB) of the extra capacity areas allocated from the SDPV is displayed. The SDPV capacity must be a multiple of this SDPE size.

#### **Caution**

One SDPE is specified in the ETERNUS DX400/DX8000 series. To change SDPE, click the [Change SDPE] link in the [Set Snap Data Pool (SDPV List)] screen.

## A.12.3 Set Snap Data Pool (Select SDPV) Screen

On this screen, select the SDPV to be deleted and its deletion method.

Refer to ["A.12.1 Set Snap Data Pool \(SDPV List\) Screen" \(page 729\)](#) for setting items of [Snap Data Pool Information] and [Logical Volume List].

## ■ Logical Volume list

### ● Setting item

#### • Checkbox

When the [Individual] radio button is selected, check the checkbox for SDPV(s) to be deleted.

## ■ Deletion method selection

### ● Setting item

- [Deleting mode] radio button

Select the mode used when deleting SDPVs:

- Normal Mode (Default):

If the target SDPV is not used, the SDPV is deleted. If the target SDPV is used, it becomes scheduled for deletion. SDPV that are scheduled for deletion will be deleted after all the allocated SDPE are canceled and became unused. SDPV that are scheduled for deletion is displayed with "Scheduled for Deletion" in red characters in the "Status" field of Logical Volume List.

SDPV that is scheduled for deletion is not used for SDV allocation.

- Forcible Mode:

The target SDPV is forcibly deleted even if it is used.

---

### **Caution**

- SDPV that is scheduled for deletion cannot be deleted in "Normal Mode".
  - SDPV that is scheduled for deletion can be deleted in "Forcible Mode".
- 

- [Individual/Range Selection] radio button

Specify the method used to select SDPVs for deletion:

- Individual (Default):

Select this method to specify an individual SDPV to be deleted.

- Range:

Select this method to specify SDPV(s) in the specific range of the Logical Volume list.

- From: Logical Volume#:

The first Logical Volume number in the range (4-digit hexadecimal)

- To: Logical Volume#:

The last Logical Volume number in the range (4-digit hexadecimal)

If the [From: Logical Volume#] is larger than the [To: Logical Volume#], ETERNUS DX400/DX8000 series treats the [To: Logical Volume#] as the start Logical Volume number, and [From: Logical Volume#] as the last Logical Volume number.

## A.13 LUN Concatenation

### A.13.1 LUN Concatenation (Input Volume) Screen

Create the volume to be concatenated.

- Setting item

- Radio button

Select a free area (Free) to create the volume to be concatenated.

---

**Caution** 

Radio button is not displayed for the free area (Free) whose capacity is less than 1,024 (MB).

---

- Capacity

Set the capacity of the volume to be concatenated in units of MB.

Any capacity may be set between 1,024MB and the size of the remaining "free area", up to a maximum of 8,388,607MB (if there is more than 8TB of free area).

---

**Caution** 

The [Capacity] is not displayed if there are no free areas (Free) that can be selected.

---

## A.14 Set Thin Provisioning Pool Parameters

### A.14.1 Set Thin Provisioning Pool Parameters (Notification Setting) Screen

Set the thresholds of Thin Provisioning Pools on this screen.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed Thin Provisioning Pools differ depending on the current user account.

When logged on using a Total Administrator account, all the Thin Provisioning Pools that are assigned to Resource Domains are displayed. When logged on using a Resource Domain Administrator account, only the Thin Provisioning Pools that are assigned to the relevant Resource Domain, and only the Thin Provisioning Pools that are assigned to the Shared Resource, are displayed.

When Resource Domains are not registered, all the Thin Provisioning Pools registered in the ETERNUS DX400/DX8000 series are displayed.

Refer to ["A.4.1 Thin Provisioning Pool List \(Pool List\) Screen" \(page 676\)](#) for details about Thin Provisioning Pool List.

#### ■ Manual setting

##### ● Setting item

##### • Notice (%)

##### - Warning

Input the Warning (high) thresholds of Thin Provisioning Pool in percent figures (%) in the text box (required).

Specify the threshold between 5 – 99 (%). The default setting is "90 (%)".

##### **Caution**



A smaller value than the Caution threshold of the target Thin Provisioning Pool is not allowed.

##### - Caution

Input the Warning (low) thresholds of Thin Provisioning Pool in percent figures (%) in the text box (can be omitted).

Specify the threshold between 5 – 80 (%). The default setting is "75 (%)".

When no thresholds are specified for the Thin Provisioning Pool, delete the parameters for the relevant Thin Provisioning Pool.

##### **Caution**



A larger value than the Warning threshold of the target Thin Provisioning Pool is not allowed.

## ■ Set Range

### ● Setting item

#### • Set Range

##### - From

Input the beginning Thin Provisioning Pool number in the text box to set the thresholds.  
Specify the Thin Provisioning Pool number between 0x00 – 0xFF.

##### - To

Input the last Thin Provisioning Pool number in the text box to set the thresholds.  
Specify the Thin Provisioning Pool number between 0x00 – 0xFF.

#### • Threshold

##### - Warning

Input the Warning (high) thresholds of the Thin Provisioning Pool in percent figures (%) in the text box.  
Specify the threshold between 5 – 99 (%).

#### Caution



A smaller value than the Caution threshold of the target Thin Provisioning Pool is not allowed.

##### - Caution

Input the Warning (low) thresholds of Thin Provisioning Pool in percent figures (%) in the text box.  
Specify the threshold between 5 – 80 (%).

#### Caution



A larger value than the Warning threshold of the target Thin Provisioning Pool is not allowed.

#### • Select threshold

Select the threshold value to be changed using the radio button.

##### - Both:

Specify both the Warning and Caution thresholds (Default).

##### - Warning only:

Specify the Warning threshold.

##### - Caution only:

Specify the Caution threshold.

#### Caution



- When "Both" is selected, input both the Warning and Caution thresholds.
- When "Warning only" is selected, input the Warning threshold.
- When "Caution only" is selected, input the Caution threshold.

## A.15 Format Thin Provisioning Pool

### A.15.1 Format Thin Provisioning Pool (Select Format Type) Screen

Select the Mode and Type of Selection to specify the Thin Provisioning Pools to be formatted.

- Setting item

- Mode

- All Thin Provisioning Pool (Default)

Thin Provisioning Pools whose status is "Available", "Partially Ready", or "Ready" will be formatted.

**Caution**



When performing the format, data stored in the Thin Provisioning Volumes created in the target Thin Provisioning Pool will be deleted.

- Unformatted Thin Provisioning Pool

Thin Provisioning Pools whose status is "Partially Ready" or "Ready" will be formatted.

**Caution**



When there are no unformatted Thin Provisioning Pools, "Unformatted Thin Provisioning Pool" is not displayed as the Mode.

- Type of Selection

- Select Individual Selection or Range Selection and format. (Default)

Select the Thin Provisioning Pools to be formatted from the list of Thin Provisioning Pools that satisfy the user specified Mode.

There are two methods of selection, the first is [Individual Selection] by each Thin Provisioning Pool unit, and the second is [Range Selection] by specifying the From/To Thin Provisioning Pool numbers.

- Select all Thin Provisioning Pools and format.

All the Thin Provisioning Pools that can be managed by the current user account and satisfy the user selected Mode will be the format target.

## A.16 Set Thin Provisioning Volume Parameters

### A.16.1 Set Thin Provisioning Volume Parameters (Notification Setting) Screen

Set the thresholds of the Thin Provisioning Pool for each volume.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed Thin Provisioning Volumes differ depending on the current user account.

When logged on using a Total Administrator account, all the Thin Provisioning Volumes assigned to Resource Domains are displayed. When logged on using a Resource Domain Administrator account, only the Thin Provisioning Volumes that are assigned to the relevant Resource Domain, and only the Thin Provisioning Volumes that are assigned to the Shared Resource, are displayed.

When Resource Domains are not registered, all the Thin Provisioning Volumes registered in the ETERNUS DX400/DX8000 series are displayed.

Refer to ["A.4.2 Thin Provisioning Pool List \(Volume List in the Pool\) Screen" \(page 678\)](#) for details about the Volume List.

#### ● Setting item


- Notice (%)

- Caution

Input the thresholds (\*1) of Thin Provisioning Pool capacity for each volume in percent figures(%) in the text box.

Specify the threshold between 1 and 200 (%). The default setting is "10 (%)".

---

**Caution**  Thresholds cannot be input for Temporary Volumes (\*2).

---

\*1: Threshold is used for monitoring the Thin Provisioning Pool capacity for each Thin Provisioning Volume. Setting the threshold to a larger size facilitates faster notification by alarm.

(Example 1)

Free area of Thin Provisioning Volume = 10TB, Threshold = 10 (%)

Free area of Thin Provisioning Pool < 1.0TB (= 10TB × 10 (%))

→ Notifies "Caution" status (alarm notification).

(Example 2)

Free area of Thin Provisioning Volume = 10TB, Threshold = 50 (%)

Free area of Thin Provisioning Pool < 5.0TB (= 10TB × 50 (%))

→ Notifies "Caution" status (alarm notification).

\*2: Migration source volume that fails to be deleted after RAID Migration has been completed, or work volume that fails to be deleted after TPV balancing.

## A.17 Balance Thin Provisioning Volume

### A.17.1 Balance Thin Provisioning Volume (Select Balancing TPV) Screen

On this screen, select a TPV to be balanced with the radio button.

For the conditions of TPVs that can be balanced, refer to ["Conditions for a TPV to be Balanced" \(page 284\)](#).

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed TPVs differ depending on the current user account.

When logged on using a Total Administrator account, all TPVs are displayed. When logged on using a Resource Domain Administrator account, only the TPVs that are assigned to the relevant Resource Domain, and only the TPVs that are assigned to the Shared Resource, are displayed. When Resource Domains are not registered, all the TPVs registered in the ETERNUS DX400/DX8000 series are displayed.

#### ■ Thin Provisioning Volume List

##### ● Setting item

###### • Radio button

The radio buttons are displayed for TPVs that can be balanced. Select the TPV to be balanced. The initial status is "Not selected".

##### **Caution**

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, radio buttons are not displayed for TPVs that are in a Resource Domain in which the maximum number of volumes are already registered.

##### ● Displayed contents

###### • TPV No.

The Logical Volume numbers of TPVs registered in the ETERNUS DX400/DX8000 series are displayed in 4-digit hexadecimal.

###### • TPV Name

The Logical Volume names of TPVs registered in the ETERNUS DX400/DX8000 series are displayed within 16 characters.  
If a Logical Volume name is not specified, the field is blank.

###### • Status

The TPV status is displayed.

###### • Balance Level

The Balance Level (High, Middle, or Low) of the TPV is displayed.  
When the ETERNUS DX400/DX8000 series is in abnormal status (such as "Not Ready"), [-] (hyphen) is displayed.  
Refer to ["Criteria for Balance Level" \(page 740\)](#) for details.

- Capacity (MB)  
The logical capacity of the TPV is displayed in MB.
- TPP No.  
The Pool number of the TPP to which the TPV belongs is displayed in 2-digit hexadecimal.
- TPP Name  
The Pool name of the TPP to which the TPV belongs is displayed within 16 characters.  
If a Thin Provisioning Pool name is not specified, the field is blank.
- Resource Domain No.  
The Resource Domain number (0x00 – 0x07) to which the TPV belongs is displayed.  
When the relevant TPV is a Shared Resource, [-] (hyphen) is displayed.
- Resource Domain Name  
The Resource Domain name to which the TPV belongs is displayed within 16 characters.  
If a Resource Domain name is not specified, the field is blank.  
For a Shared Resource TPV, [Share] is displayed.

**Caution** 

When Resource Domains are not registered in the ETERNUS DX400/DX8000 series, or when logged on using a Resource Domain Administrator account, the [Resource Domain No.] and the [Resource Domain Name] are not displayed.

■ Supplementary information (Balance Level)

There are three Balance Levels; "High", "Middle", and "Low". "High" indicates that the physical capacity of TPV is allocated equally in the RAID Groups registered in the TPP. "Low" indicates that the physical capacity is allocated unequally to a specific RAID Group in the TPP.

● Criteria for Balance Level

Divide the physical allocating capacity of the TPV by the number of RAID Groups registered in the TPP where the relevant TPV belongs, and obtain the average value of the physical allocating capacity per RAID Group. The Balance Level is obtained from the ratio of the calculated average value of the physical allocating capacity per RAID Group and the physical allocating capacity that is actually allocated for each RAID Group.

- High  
The actual physical allocating capacities for all the RAID Groups are within the range of 95 – 105 (%) of the average value
- Middle  
The actual physical allocating capacities for all the RAID Groups are within the range of 50 – 95 (%) or 105 – 150 (%) of the average value
- Low  
Other than the above range

If the Balance Level differs according the RAID Group, the lowest level (Low > Middle > High) is selected as the Balance Level of the relevant TPV.

Note that when the physical allocating capacity is less than the specific value, "High" is selected without any conditions.

## A.18 Set CA Parameters

### A.18.1 Set CA Parameters (FC-CA Detailed Settings) Screen

Set the detailed information of the FC-CA Port selected on the [Set CA Parameters (Initial)] screen. The installation location of the FC-CA Port is displayed on the screen as [CM#x CA#y Port#z].

When it is necessary to convert a Host Response from the ETERNUS DX400/DX8000 series to the host, the Host Response must be assigned to each Host World Wide Name or each FC-CA Port. A target to which a Host Response is assigned varies depending on [ON/OFF] of the Host Affinity function. Check the [Affinity Mode] of the FC-CA Port.

- When the Host-Affinity function is [ON (Enabled)]  
Set Host Response for each host World Wide Name using the [Set Host World Wide Name(s)] function.
- When the Host-Affinity function is [OFF (Disabled)]  
Set Host Response for each FC-CA Port using this function. For details, refer to the [Affinity Mode] description in the following table.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the Host Responses that can be set differ depending on the current user account.

- When logged on using a Total Administrator account, all the Host Responses that are assigned to Resource Domains can be set.
- When logged on using a Resource Domain Administrator account, only the Host Responses that are assigned to the relevant Resource Domain, and only the Host Responses that are assigned to the Shared Resource, can be set.

#### Caution



If a Host Response is deleted using the [Set Host Response] function, the Host Response of each FC-CA Port associated with the deleted Host Response is changed to the [Host Response No.: Default].



#### Note

- If appropriate Host Response is not registered in the ETERNUS DX400/DX8000 series, register a Host Response using the [Set Host Response] function.
- For details about the selection guide for each item, refer to the "ETERNUS DX Disk storage systems Server Connection Guide".

● Setting item

**Caution**



Reboot PRIMEPOWER and SPARC Enterprise servers immediately if the Loop-ID is changed while the server is running. If the PRIMEPOWER or SPARC Enterprise not rebooted, warning messages or system crashes may occur.

- Connection Topology  
Select the connection topology for the FC-CA Port by clicking the radio button.
  - Fabric Connection: Communicates between multiple nodes simultaneously by using Fibre Channel Switch(es).
  - FC-AL Connection: Multiple nodes are connected on the Loop. (Default)
- Loop-ID (Manual/Auto)  
Decide how to assign a Loop-ID for the FC-CA Port using the radio buttons. Loop-ID is a node identification number in the Loop.
  - Loop-ID (Manual): Any Loop-ID (0x00 – 0x7D) can be assigned. (Default)
  - Loop-ID (Auto): Loop-ID is assigned automatically in the Loop.

**Caution**



This setting is enabled only when the [FC-AL Connection] is selected for the Connection Topology.

- Loop-ID
  - Select a Loop-ID (0x00 to 0x7D) for the FC-CA Port from the list box.  
The default setting is "0x00".

**Caution**



- This setting is enabled only when the [FC-AL Connection] and [Loop-ID (Manual)] is selected for the Connection Topology.
- Do not select the same Loop-ID as any other ports including the host adapters connected to the ETERNUS DX400/DX8000 series in Loop-ID.

- Select a Loop-ID setting order (Descending/Ascending) for the FC-CA Port from the list box.

**Caution**



This setting is enabled only when the Connection Topology is [FC-AL Connection] and also the [Loop-ID (Auto)] is selected.

- FC Frame Size  
Select a FC Frame Size for the FC-CA Port from the list box.  
"FC Frame Size" is a function that regulates the size of communication information between the CA port and the host.
  - 2048Byte (Default)
  - 1024Byte
  - 512Byte

- Transfer Rate

Select a Transfer Rate for the FC-CA Port from the list box.

- For FC4G

- 4G/2G/1Gbit/s Auto: Selects the transfer rate automatically. (Default)
    - 4Gbit/s: Sets the transfer rate to 4Gbit/s.
    - 2Gbit/s: Sets the transfer rate to 2Gbit/s.
    - 1Gbit/s: Sets the transfer rate to 1Gbit/s.

- For FC8G

- 8G/4G/2Gbit/s Auto: Selects the transfer rate automatically. (Default)
    - 8Gbit/s: Sets the transfer rate to 8Gbit/s.
    - 4Gbit/s: Sets the transfer rate to 4Gbit/s.
    - 2Gbit/s: Sets the transfer rate to 2Gbit/s.



**Note**

Current transfer rate setting can be checked in the "Link Status" column on the CA details screen (FC) under the [Device Status] menu.

---

- Affinity Mode

Select whether the Host-Affinity function of the FC-CA Port is ON (Enabled) or OFF (Disabled) using the radio buttons.

- ON:

Enables the Host-Affinity function of the FC-CA Port.

In this case, [Set LUN Mapping] is disabled and the Host-Affinity function is enabled for the FC-CA Port.

- OFF: (Default)

Disables the Host-Affinity function of the FC-CA Port.

In this case, [Set LUN Mapping] is enabled and the Host-Affinity function is disabled for the FC-CA Port.

- Host Response

Select the appropriate Host response from the list box depending on the host connected to the FC-CA Port. When clicking the [Host Response List] link, the Host Responses that can be set are displayed.

- Default: Name (initial status):

The [Default] Host Response is displayed. If the Host Response Name is registered, the name is also displayed in the list box.

- Host Response (Number: Name):

A Host Response identification number is displayed. If the Host Response Name is registered, the name is also displayed in the list box.  
(Number = 0x01 – 0x0FF)

---

**Caution**

- This setting is enabled only when the [Affinity Mode] is [OFF (Disabled)].
  - When logged on using a Resource Domain Administrator account, only the Host Responses that are assigned to the relevant Resource Domain, and only the Host Responses that are assigned to the Shared Resource, are displayed in the list box as options.
-

- **Reset Scope**  
Set the reset scope of the FC-CA Port.  
The "Reset Scope" is a range where the command reset request from the host operates when the 1FC-CA Port is connecting with multiple hosts.
  - **I\_T\_L (Default):**  
Only resets (cancels) the command request from the host which sent the command reset request.
  - **T\_L:**  
Not only resets (cancels) the command request from the host which sent the command reset request, but also resets the command reset request from all hosts connected to the FC-CA port.
- **Reserve Cancel at Chip Reset**  
A volume can be set to reserved status using the "Reserve" command from the host. When the ISP Chip of the FC-CA port is in the reset status, whether to cancel the volume reserved status can be set on the [Reserve cancel at Chip Reset].
  - **OFF:** Does not cancel the reserved status. (Default)
  - **ON:** Cancels the reserved status.

## A.18.2 Set CA Parameters (FC-RA Detailed Settings) Screen

---

Set the detailed information of the FC-RA Port selected on the [Set CA Parameters (Initial)] screen. The installation location of the FC-RA Port is displayed on the screen as [CM#x CA#y Port#z].

- **Setting item**
  - **Connection Topology**  
Select the connection topology for the FC-RA Port by clicking the radio button.
    - **Fabric Connection**  
Communicates between multiple nodes simultaneously by using Fibre Channel Switch(es).
    - **FC-AL Connection**  
Multiple nodes are connected on the Loop. (Default)
  - **Loop-ID (Manual/Auto)**  
Decide how to assign a Loop-ID for the FC-RA Port using the radio buttons. Loop-ID is a node identification number in the Loop.
    - **Loop-ID (Manual)**  
Any Loop-ID (0x00 – 0x7D) can be assigned. (Default)
    - **Loop-ID (Auto)**  
Loop-ID is assigned automatically in the Loop.

---

**Caution**



This setting is enabled only when the [FC-AL Connection] is selected for the Connection Topology.

---

- Loop-ID
  - Select a Loop-ID (0x00 to 0x7D) for the FC-RA Port from the list box.  
The default setting is "0x00".

**Caution**



- This setting is enabled only when the [FC-AL Connection] and [Loop-ID (Manual)] is selected for the Connection Topology.
- Do not select the same Loop-ID as any other ports including the host adapters connected to the ETERNUS DX400/DX8000 series in Loop-ID.

- Select a Loop-ID setting order (Descending/Ascending) for the FC-RA Port from the list box.

**Caution**



This setting is enabled only when the Connection Topology is [FC-AL Connection] and also the [Loop-ID (Auto)] is selected.

- Transfer Rate  
Select a Transfer Rate for the FC-RA Port from the list box.
  - For FC4G
    - 4G/2G/1Gbit/s Auto: Selects the transfer rate automatically. (Default)
    - 4Gbit/s: Sets the transfer rate to 4Gbit/s.
    - 2Gbit/s: Sets the transfer rate to 2Gbit/s.
    - 1Gbit/s: Sets the transfer rate to 1Gbit/s.
  - For FC8G
    - 8G/4G/2Gbit/s Auto: Selects the transfer rate automatically. (Default)
    - 8Gbit/s: Sets the transfer rate to 8Gbit/s.
    - 4Gbit/s: Sets the transfer rate to 4Gbit/s.
    - 2Gbit/s: Sets the transfer rate to 2Gbit/s.



**Note**

Current transfer rate setting can be checked in the "Link Status" column on the CA details screen (FC) under the [Device Status] menu.

### A.18.3 Set CA Parameters (RFCF-RA Detailed Settings) Screen

Set the detailed information of the RFCF-RA Port selected on the [Set CA Parameters (Initial)] screen. The installation location of the RFCF-RA Port is displayed on the screen as [CM#x CA#y Port#z].

- Setting item
  - Connection Topology  
Select the connection topology for the RFCF-RA Port by clicking the radio button.
    - Fabric Connection  
Communicates between multiple nodes simultaneously by using Fibre Channel Switch(es). (Default)

- FC-AL Connection  
Multiple nodes are connected on the Loop.

**Caution**



Be sure to specify [Fabric connection] for the Connection Topology. The RFCF-RA port does not support the [FC-AL connection].

- Loop-ID (Manual/Auto)  
Decide how to assign a Loop-ID for the RFCF-RA Port using the radio buttons. Loop-ID is a node identification number in the Loop.
  - Loop-ID (Manual)  
Any Loop-ID (0x00 – 0x7D) can be assigned.
  - Loop-ID (Auto)  
Loop-ID is assigned automatically in the Loop.

**Caution**



This setting is enabled only when the [FC-AL Connection] is selected for the Connection Topology.

- Loop-ID
  - Select a Loop-ID (0x00 – 0x7D) for the RFCF-RA Port from the list box.

**Caution**



- This setting is enabled only when the [FC-AL Connection] and [Loop-ID (Manual)] is selected for the Connection Topology.
- Do not select the same Loop-ID as any other ports including the host adapters connected to the ETERNUS8000 in Loop-ID.

- Select a Loop-ID setting order (Descending/Ascending) for the RFCF-RA Port from the list box.

**Caution**



This setting is enabled only when the Connection Topology is [FC-AL Connection] and also the [Loop-ID (Auto)] is selected.

- Transfer Rate  
Select a Transfer Rate for the RFCF-RA Port from the list box.
  - 4G/2G/1Gbit/s Auto: Selects the transfer rate automatically. (Default)
  - 4Gbit/s: Sets the transfer rate to 4Gbit/s.
  - 2Gbit/s: Sets the transfer rate to 2Gbit/s.
  - 1Gbit/s: Sets the transfer rate to 1Gbit/s.



**Note**

Current transfer rate setting can be checked in the "Link Status" column on the CA details screen (FC) under the [Device Status] menu.

## A.18.4 Set CA Parameters (OCLINK Detailed Settings) Screen

---

Set the detailed information of the OCLINK Port selected on the [Set CA Parameters (Initial)] screen. The installation location of the OCLINK Port is displayed on the screen as [CM#x CA#y Port#z].

- Setting item

- OS Kind

Select the OS type for the host connected with the OCLINK Port by clicking the radio button.

- Fujitsu 1: (Default)

The destination host runs on a Fujitsu OS.

This is used when the OS can recognize and control the Logical Control Unit (LCU).

When this OS is selected, it is necessary to register multiple (maximum 16) LCUs and mapping information by the [Set LCU] function.

- Fujitsu 2:

The destination host runs on a Fujitsu OS.

This is used when the OS cannot recognize or control the Logical Control Unit (LCU).

When this OS is selected, it is necessary to register one LCU and mapping information by the [Set LCU] function.

---

**Caution**



If the OS Kind is changed, mapping information is deleted.

---

- Port Mode

Select the desired port mode for the OCLINK Port by clicking the radio button.

- CU: (Default)

Port Mode for Mainframe host connections.

- CH:

Unsupported Port Mode (cannot be selected).

## A.18.5 Set CA Parameters (FCLINK Detailed Settings) Screen

---

Set the detailed information of the FCLINK Port selected on the [Set CA Parameters (Initial)] screen. The installation location of the FCLINK Port is displayed on the screen as [CM#x CA#y Port#z].

- Setting item

- Transfer Rate

Select the transfer rate of the FCLINK Port from the list box.

- 1Gbit/s: (Default)

Sets the transfer rate to 1Gbit/s.

This is used when connecting GS and FCLINK directly.

- 2Gbit/s:

Sets the transfer rate to 2Gbit/s.

This is used when connecting GS and FCLINK via FCLINK switch.

- Port Mode  
Select the desired port mode for the FCLINK Port by clicking the radio button.
  - CU: (Default)  
Port Mode for Mainframe host connections.
  - CH:  
Unsupported Port Mode (cannot be selected).

## A.18.6 Set CA Parameters (iSCSI-CA Detailed Settings) Screen

---

Set the detailed information of the iSCSI-CA Port selected on the [Set CA Parameters (Initial)] screen. The installation location of the iSCSI-CA Port is displayed on the screen as [CM#x CA#y Port#z].

When it is necessary to convert a Host Response from the ETERNUS DX400/DX8000 series to the host, the Host Response must be assigned to each iSCSI Host information item or each iSCSI-CA Port. A target to which a Host Response is assigned varies depending on [ON/OFF] of the Host Affinity function. Check the [Affinity Mode] of the iSCSI-CA Port.

- When the Host-Affinity function is [ON (Enabled)]  
Set Host Response for each iSCSI Host information using the [Set iSCSI Host] function.
- When the Host-Affinity function is [OFF (Disabled)]  
Set Host Response for each iSCSI-CA Port using this function. For details, refer to the [Affinity Mode] description in the following table.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the Host Responses that can be set differ depending on the current user account.

- When logged on using a Total Administrator account, all the Host Responses that are assigned to Resource Domains can be set.
- When logged on using a Resource Domain Administrator account, only the Host Responses that are assigned to the relevant Resource Domain, and only the Host Responses that are assigned to the Shared Resource can be set.

---

### Caution



If a Host Response is deleted using the [Set Host Response] function, the Host Response of each iSCSI-CA Port associated with the deleted Host Response is changed to the [Host Response No.: Default].



### Note

If appropriate Host Responses are not registered in the ETERNUS DX400/DX8000 series, register Host Responses using the [Set Host Response] function.

---

- Setting item
  - TCP/IP Setting
    - IP Address  
Set the IP Address of the iSCSI-CA Port (required).  
Numeric characters from 1 to 3 (the first part: 1 to 255, others: 0 – 255) are entered in all text boxes.  
As a default, "192.168.1.xxx" is displayed.  
(xxx: The value decided from the iSCSI-CA Port module ID and the port number)
    - Subnet Mask  
Set the Subnet Mask of the iSCSI-CA Port (required).  
Numeric characters from 1 to 3 (0 to 255) are entered in all textboxes.  
The default setting is "255.255.255.0".
    - Gateway  
Set the Gateway of the iSCSI-CA Port.  
Numeric characters from 1 to 3 (0 to 255) are entered in all textboxes.  
The initial status is blank.
    - iSNS Server  
Set the iSNS server of the iSCSI-CA Port to either ON (Enabled) or OFF (Disabled).  
The default setting is "OFF (Disabled)".  
iSNS (Internet Storage Name Service) is an equivalent to the DNS (Domain Name System) for the Internet. The iSNS server is used to convert the iSCSI names into IP addresses.
    - iSNS Server IP Address  
Set the iSNS Server IP Address of the iSCSI-CA Port in numerals 0 – 255.  
The initial status is blank.

---

**Caution** 

This is enabled only when [ON] is selected for the iSNS Server setting.

---

- iSCSI Setting
  - iSCSI Name  
Set the iSCSI Name for the iSCSI-CA Port (required).  
Alphanumeric characters, [-] (hyphen), [:] (colon), and [.] (period) can be used.  
iSCSI Name is a unique name corresponding to the network address specified in the TCP/IP Setting of each iSCSI-CA Port. By setting iSCSI Name and network address individually, the ETERNUS DX400/DX8000 series can have unique identifiers in the network regardless of the location. Using this iSCSI Name, the host can detect the destination device even when the network address has changed.  
The default of the iSCSI Name is the ETERNUS DX400/DX8000 series iSCSI Name. When re-setting the ETERNUS DX400/DX8000 series iSCSI Name in [iSCSI Name], click the [Default] button.  
The ETERNUS DX400/DX8000 series iSCSI Name is displayed in ( ) on the bottom of the [Default] button.

---

**Caution** 

The iSCSI Name is a unique name in the ETERNUS DX400/DX8000 series. The same iSCSI Names cannot be set in multiple iSCSI-CA Ports except the ETERNUS DX400/DX8000 series iSCSI Name.

---

- Alias name  
Set the Alias Name for the iSCSI-CA Port (can be omitted).  
Alphanumeric characters and 1 -31 characters can be used.  
Alias name is a nickname of the iSCSI Name that identifies the iSCSI-CA Port. Since the iSCSI name is a very long identifier (up to 223 characters), the Alias name is used in substitution for the iSCSI name.
- Transfer Rate
  - Transfer Rate  
Set the transfer rate of the iSCSI-CA Port.
    - 1Gbit/s: Sets the transfer rate to 1Gbit/s (full-duplex).
- CHAP
  - CHAP  
Select ON (Enabled) or OFF (Disabled) for CHAP of the iSCSI-CA Port.
    - ON: CHAP is enabled.
    - OFF: CHAP is disabled. (Default)  
CHAP (Challenge Handshake Authentication Protocol) is one of the authentication protocols. In CHAP, the ETERNUS DX400/DX8000 series sends the host an encrypted password which is based on a random key received from the host and the host decides whether to connect or not. Since iSCSI uses an IP network that is used by the general public, the security measures described above are required.

**Caution**



When the [Affinity Mode] is [OFF (Disabled)], CHAP cannot be [ON (Enabled)].

- Current Password  
Enter the current password to be used for the CHAP of the iSCSI-CA Port (can be omitted).  
From 12 to 100 alphanumeric characters (ASCII codes: 0x20 to 0x7E) must be entered.

**Caution**



- This is enabled only when "ON" is selected for CHAP.
- When setting the Password, check the "Change" checkbox.
- Make sure to set the user name and the password in pairs.

- User Name  
Enter the user name to be used for the CHAP of the iSCSI-CA Port (can be omitted).  
From 1 to 255 alphanumeric characters (ASCII codes: 0x20 to 0x7E) can be used.

**Caution**



- This is enabled only when "ON" is selected for CHAP.
- When setting the User Name, check the "Change" checkbox.
- Make sure to set the user name and the password in pairs.

- New Password  
Enter a new password when the current CHAP password for the iSCSI-CA Port is to be replaced.  
From 12 to 100 alphanumeric characters (ASCII codes: 0x20 to 0x7E) must be entered.
- New Password (Re-enter)  
Re-enter the new password to check that it has been entered correctly.  
From 12 to 100 alphanumeric characters (ASCII codes: 0x20 to 0x7E) must be entered.

- Affinity Mode
  - Affinity Mode  
Select whether the Host-Affinity function of the iSCSI-CA Port is ON (Enabled) or OFF (Disabled) using the radio button.
    - ON:  
Means that the Host-Affinity function for the iSCSI-CA Port is enabled. In this case, [Set LUN Mapping] is disabled and the Host-Affinity function is enabled for the iSCSI-CA Port.
    - OFF: (Default)  
Means that the Host-Affinity function for the iSCSI-CA Port is disabled. In this case, [Set LUN Mapping] is enabled and the Host-Affinity function is disabled for the iSCSI-CA Port.
  - Host Response  
Select the appropriate Host response from the list box depending on the host connected to the iSCSI-CA Port. When clicking the [Host Response List] link, the Host Responses that can be set are displayed.
    - Default: Name (initial status):  
The [Default] Host Response is displayed. If the Host Response name is registered, its name is also displayed in the list box.
    - Host Response (Number: Name):  
A Host Response identification number is displayed. If the Host Response name is registered, its name is also displayed in the list box.  
(Number = 0x01 – 0xFF)

---

**Caution**



- This setting is enabled only when the [Affinity Mode] is [OFF (Disabled)].
  - When logged on using a Resource Domain Administrator account, only the Host Responses that are assigned to the relevant Resource Domain, and only the Host Responses that are assigned to the Shared Resource, are displayed in the list box as options.
- 

- Reset Scope  
Set the reset scope of the iSCSI-CA Port.  
The "Reset Scope" is a range where the command reset request from the host operates when one iSCSI-CA Port is connecting with multiple hosts.
  - I\_T\_L (Default):  
Only resets (cancels) the command request from the host which sent the command reset request.
  - T\_L:  
Not only resets (cancels) the command request from the host which sent the command reset request, but also resets the command reset request from all hosts connected to the iSCSI-CA Port.

- Reserve Cancel at Chip Reset  
A host can place a volume in reserved status by issuing the "Reserve" command. When the ISP Chip of the iSCSI-CA Port is reset, whether or not to cancel the volume reserved status can be set with the [Reserve cancel at Chip Reset].
  - OFF: Does not cancel the reserved status. (Default)
  - ON: Cancels the reserved status.
- CmdSN Count  
Change the number of commands that can be accepted from the host at the same time for the iSCSI-CA port. It is not necessary to change this default setting (Unlimited) for normal use. The number of commands can be selected from Default, 180, 120, 80, 40, or 20.
- Header Digest  
Set the Header Digest of the iSCSI-CA Port.  
[Header Digest] is a check code which adds detailed information to the header division of iSCSI-CA. Specify "CRC32C" when add check code from the host is requested.
  - OFF (Default)  
Does not add the check code.
  - CRC32C  
Adds the check code.  
"CRC32C" is an algorithm when creating a check code.
- Data Digest  
Set the Data Digest of the iSCSI-CA Port.  
[Data Digest] is a check code which adds detailed information to the data division of iSCSI-CA. Specify "CRC32C" when add check code from the host is requested.
  - OFF (Default)  
Does not add the check code.
  - CRC32C  
Adds the check code.  
"CRC32C" is an algorithm when creating a check code.

### A.18.7 Set CA Parameters (iSCSI-RA Detailed Settings) Screen

---

Set the detailed information of the iSCSI-RA Port selected on the [Set CA Parameters (Initial)] screen. The installation location of the iSCSI-RA Port is displayed on the screen as [CM#x CA#y Port#z].

- Displayed contents
  - iSCSI Name
    - iSCSI Name  
iSCSI Name of the iSCSI-RA Port is displayed.

- Setting item
  - TCP/IP Setting
    - IP Address  
Specify IP Address of the iSCSI-RA Port (required).  
Numeric characters from 1 to 3 (the first part: 1 to 255, others: 0 to 255) are entered in all text boxes.  
As a default, "192.168.1.xxx" is displayed.  
(xxx: The value decided from the iSCSI-RA Port module ID and the port number)
    - Subnet Mask  
Specify Subnet Mask of the iSCSI-RA Port (required).  
Numeric characters from 1 to 3 (0 to 255) are entered in all textboxes.  
The default setting is "255.255.255.0".
    - Gateway  
Specify the Gateway of the iSCSI-RA Port.  
Numeric characters from 1 to 3 (0 to 255) are entered in all textboxes.  
The initial status is blank.
    - iSNS Server  
Set ON (Enabled) or OFF (Disabled) for the iSNS server of the iSCSI-RA Port.  
The default setting is "OFF (Disabled)".  
iSNS (Internet Storage Name Service) is an equivalent to the DNS (Domain Name System) for the Internet. The iSNS server is used to convert the iSCSI names into IP addresses.
    - iSNS Server IP address  
Set the iSNS Server IP Address of the iSCSI-RA Port in numerals 0 – 255.  
The initial status is blank.

---

**Caution** 

---

This is enabled only when [ON] is selected for the iSNS Server setting.

---

- iSCSI Setting
  - Alias name  
Specify the Alias Name of the iSCSI-RA Port (can be omitted).  
Alphanumeric characters from 1 -31 characters can be used.  
Alias name is a nickname of the iSCSI Name that identifies the iSCSI-RA Port. Since the iSCSI name is a very long identifier (up to 223 characters), the Alias name is used in substitution for the iSCSI name.
- Transfer Rate
  - Transfer Rate  
Set transfer rate of the iSCSI-RA Port.
    - Auto-negotiation
    - 1Gbit/s Full duplex/Half duplex auto-setting (Default)
    - 1Gbit/s Full duplex
    - 100Mbit/s Full duplex/Half duplex auto-setting
    - 100Mbit/s Full duplex



**Note**

Current transfer rate setting can be checked in the "Link Status" column on the CA details screen (iSCSI-RA) under the [Device Status] menu.

- **Bandwidth Limit**

- **Bandwidth Limit**

Sets the bandwidth limit of the iSCSI-RA Port.

Enter a value between 10Mbit/s and 400Mbit/s.

This limit is used to restrict the volume of data transferred via the iSCSI-RA Port.

The initial setting is 400Mbit/s.



**Caution**

Only set a bandwidth limit (as appropriate) if the line being used requires one.

- **MTU size**

- **MTU size**

Set the MTU size for the iSCSI-RA Port.

Maximum Transmission Unit (MTU) is the maximum amount of data that can be sent in one transfer on a network. Specify a MTU size that suits the user environment.

- 1000bytes/1050bytes/1100bytes/1150bytes/1200bytes/1250bytes/1300bytes (Default) /1350bytes/1400bytes/1438bytes:

Sets the MTU to 1000, 1050, 1100, 1150, 1200, 1250, 1300, 1350, 1400 or 1438 bytes.

- **CHAP**

- **CHAP**

Select ON (Enabled) or OFF (Disabled) of the CHAP for the iSCSI-RA Port.

- ON: CHAP is enabled.
    - OFF: CHAP is disabled. (Default)

CHAP (Challenge Handshake Authentication Protocol) is one of the authentication protocols. In CHAP, the ETERNUS DX400/DX8000 series sends the host an encrypted password which is based on a random key received from the host and the host decides whether to connect or not. Since iSCSI uses an IP network that is used by the general public, the security measures described above are required.

- **Current Password**

Enter the current password to be used for the CHAP of the iSCSI-RA Port (can be omitted).

From 12 to 32 alphanumeric characters (ASCII codes: 0x20 to 0x7E) must be entered.



**Caution**

- This is enabled only when "ON" is selected for CHAP.
    - When setting the Password, check the "Change" checkbox.
    - Make sure to set the user name and the password in pairs.

- User Name

Enter the user name to be used for the CHAP of the iSCSI-RA Port (can be omitted).  
From 1 to 63 alphanumeric characters (ASCII codes: 0x20 to 0x7E) can be used.

---

**Caution**



- This is enabled only when "ON" is selected for CHAP.
  - When setting the User Name, check the "Change" checkbox.
  - Make sure to set the user name and the password in pairs.
- 

- New Password

Enter a new password when the current CHAP password for the iSCSI-RA Port is to be replaced.

From 12 to 32 alphanumeric characters (ASCII codes: 0x20 to 0x7E) must be entered.

- New Password (Re-enter)

Re-enter the new password to check that it has been entered correctly.

From 12 to 32 alphanumeric characters (ASCII codes: 0x20 to 0x7E) must be entered.

- Header Digest

Set Header Digest for the iSCSI-RA Port.

[Header Digest] is a check code which adds detailed information to the header division of iSCSI-RA. Specify "CRC32C" when add check code from the host is requested.

- OFF (Default)

Does not add the check code.

- CRC32C

Adds the check code.

"CRC32C" is an algorithm when creating a check code.

- Data Digest

Set Data Digest for the iSCSI-RA Port.

[Data Digest] is a check code which adds detailed information to the data division of iSCSI-RA. Specify "CRC32C" when add check code from the host is requested.

- OFF (Default)

Does not add the check code.

- CRC32C

Adds the check code.

"CRC32C" is an algorithm when creating a check code.

## A.19 Set Host World Wide Name(s)

### A.19.1 Set Host World Wide Name(s) (Initial) Screen

On this screen, the list of WWNs (Host World Wide Names) is displayed. Addition/deletion of WWN(s) is carried out on this screen.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed WWNs differ depending on the current user account.

When logged on using a Total Administrator account, all the WWNs that are assigned to Resource Domains are displayed. When logged on using a Resource Domain Administrator account, only the WWNs that are assigned to the relevant Resource Domain, and only the WWNs that are assigned to the Shared Resource, are displayed.

When Resource Domains are not registered, all the WWNs registered in the ETERNUS DX400/DX8000 series are displayed.

When no Resource Domains are registered in the ETERNUS DX400/DX8000 series, or when logged on using a Total Administrator account, refer to ["Number of WWNs/Affinity Groups/Host-Affinity Settings which can be registered" \(page 327\)](#) for the maximum number of WWNs which can be registered for the device.

#### ■ Host WWN List

##### ● Displayed contents

- Checkbox  
This is used to delete WWN.
- Host Table No.  
Identification number (000 – 3FF) for every WWN is displayed.  
Used for allocating a WWN to CA.
- Host Table Name  
Host Table name for every WWN is displayed within 16 characters.  
If the Host Table name is not specified, the field is blank.
- Host World Wide Name  
WWNs are displayed.
- Resource Domain No.  
The Resource Domain number (0x00 – 0x07) to which the WWN belongs is displayed.  
If the WWN is a Shared Resource, [-] (hyphen) is displayed.
- Resource Domain Name  
The Resource Domain name to which the WWN belongs is displayed within 16 characters.  
If a Resource Domain name is not specified, the field is blank.  
If the WWN is a Shared Resource, [Share] is displayed.
- Host Response  
The Host Response added to each WWN is displayed.  
Select adequate Host Response from the list box, if you change it.

- Default: Name:  
The [Default] Host Response is displayed. If the Host Response name is registered, its name is also displayed in the list box.
- Host Response (Number: Name):  
A Host Response identification number is displayed. If the Host Response name is registered, its name is also displayed in the list box.  
(Number = 0x01 – 0xFF)

**Caution**



- When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the [Resource Domain No.] and the [Resource Domain Name] are not displayed.
- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, only the Host Responses that are assigned to the same Resource Domains as the WWN, and Host Responses that are assigned to the Shared Resource, are displayed in the list box as options for Host Response.

■ Add WWN

● Setting item

- Name  
In the text box, enter the name to assign for the Host Table within 16 characters in ASCII code (0x20 – 0x7E). Host Table name can be omitted.

**Caution**



The same Host Table name as the existing Fibre Channel card cannot be specified.

- Radio button  
Select a method to add WWN by radio button.
  - Select:  
Select the WWN to add from the list of collectable WWNs for a specified CA (Default).
  - Manual Input:  
Directly enter the WWN to add.
- Select
  - CA  
The list of FC-CA Ports which are installed in the ETERNUS DX400/DX8000 series and available for use is displayed in the list box. Select the FC-CA Port for which to collect a WWN from the list box.
  - WWN  
Click the [Collect] button after specifying CA, and then the collected WWN list is displayed in the list box. Select a WWN to add from the list box.
  - [Collect] button  
Collects the list of WWNs recognized by the selected FC-CA Port.

- Manual Input
  - WWN  
Directly input WWN, which can be connected to a CA, in the text box using hexadecimal numeric (0–9, A–F, a–f) 16 digits. However, all "F(f)" and all "0" are not allowed.
- Resource Domain  
Select Resource Domain to assign the WWN from the list box.  
Shared Resources (Share) and Resource Domains (0x00 – 0x07) registered in the ETERNUS DX400/DX8000 series are displayed as the selection items in the list box. If a Resource Domain name has been registered, the Resource Domain name is also displayed. The default setting is "Share".

---

**Caution**



When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the "Resource Domain" item is not displayed.

---

- Host Response  
Select a Host Response to be added to each WWN from the list box. When you click the [Host Response] link, the Host Response can be displayed.
  - Default: Name:  
The [Default] Host Response is displayed. If the Host Response name is registered, its name is also displayed in the list box.
  - Host Response (Number: Name):  
A Host Response identification number is displayed. If the Host Response name is registered, its name is also displayed in the list box.  
(Number = 0x01 – 0xFF)

---

**Caution**



When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the Host Responses displayed in the list box differ depending on the current user account. When logged on using a Total Administrator account, all the Host Responses registered in the ETERNUS DX400/DX8000 series are displayed. When logged on using a Resource Domain Administrator account, only the Host Responses that are assigned to the relevant Resource Domain, and only the Host Responses that are assigned to the Shared Resource, are displayed.

---

## A.20 Set iSCSI Host

### A.20.1 Set iSCSI Host (Add) Screen

On this screen, the detailed setting for the iSCSI information to be added in the device is performed.

#### ■ Add Host iSCSI

##### ● Setting item

###### • Name

In the text box, enter the name to assign for the Host Table up to 16 characters in ASCII code (0x20 – 0x7E). Host Table name can be omitted.

###### **Caution**



The same Host Table name as for the existing LAN card cannot be specified.

###### • Resource Domain

Select Resource Domain to assign the iSCSI Hosts from the list box.

Shared Resources (Share) and Resource Domains (0x00 – 0x07) registered in the ETERNUS DX400/DX8000 series are displayed as the selection items in the list box. If a Resource Domain name has been registered, the Resource Domain name is also displayed. The default setting is "Share".

###### **Caution**



When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the "Resource Domain" item is not displayed.

###### • iSCSI Name

iSCSI Name of the iSCSI Host port is set. (required)

Alphanumeric characters from 1 to 223, [-] (hyphen), [:] (colon), [.] (period) can be used.

###### **Caution**



The iSCSI name is a unique name in the device. The same iSCSI name cannot be set for multiple iSCSI Host Ports.

###### • IP Address

IP address of the iSCSI Host port is set (can be omitted).

Numeric characters from 1 to 3 (the first part: 1 to 255, others: 0 to 255) can be entered in all text boxes.

###### **Caution**



- IP Address is a unique network address in the subnet where the device and the host connect. The same IP addresses cannot be set in the device.
- Only one iSCSI Host without an IP address setting can be specified per iSCSI name.

- **Alias Name**  
Alias Name of the iSCSI Host port is set. (can be omitted)  
ASCII code from 1 to 31 (0x20 – 0x7E) can be used.

**Caution** 

Alias name is a unique name in the device. The same Alias name cannot be set for multiple iSCSI Host Ports.

- **User Name**  
Sets user name to access the relevant iSCSI Host Port. (can be omitted)  
Alphanumeric characters from 1 to 255 can be used.  
Make sure to set the user name and password in pairs.

**Caution** 

When using Microsoft iSCSI Software Initiator, "1 – 223 characters" can be entered.

- **Password**  
Sets password to access the relevant iSCSI Host Port. (can be omitted)  
Alphanumeric characters from 12 to 100 can be used.  
Make sure to set the user name and password in pairs.

**Caution** 

- Entered password is shown as "\*\*".  
When clicking the [Add] button and iSCSI Host information is added to the [iSCSI registration list], 12 "\*\*"s are displayed as password.
- When using Microsoft iSCSI Software Initiator, "12 – 16 characters" can be entered.

- **Host Response**  
From the list box, select a Host Response which you want to add to the iSCSI Host Port.
  - **Default: Name**  
The [Default] Host Response is displayed. If the Host Response name is registered, its name is also displayed in the list box.
  - **Host Response (Number: Name):**  
A Host Response identification number is displayed. If the Host Response name is registered, its name is also displayed in the list box.  
(Number = 0x01 – 0xFF)

**Caution** 

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the Host Responses displayed in the list box differ depending on the current user account. When logged on using a Total Administrator account, the Host Responses registered in the ETERNUS DX400/DX8000 series are displayed. When logged on using a Resource Domain Administrator account, only the Host Responses that are assigned to the relevant Resource Domain, and only the Host Responses that are assigned to the Shared Resource, are displayed.

## A.21 Set Affinity Group

### A.21.1 Set Affinity Group (Initial) Screen

The list of the Affinity Groups is displayed. Adding/Changing/Deleting of the Affinity Group is carried out on this screen.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed Affinity Groups differ depending on the current user account.

When logged on using a Total Administrator account, all the Affinity Groups that are assigned to Resource Domains are displayed. When logged on using a Resource Domain Administrator account, only the Affinity Groups that are assigned to the relevant Resource Domain, and only the Affinity Groups that are assigned to the Shared Resource, are displayed.

When Resource Domains are not registered, all the Affinity Groups allocated to the ETERNUS DX400/DX8000 series are displayed.

When no Resource Domains are registered, and when logged on using a Total Administrator account, refer to ["The number of WWNs/iSCSI Hosts/Affinity Groups/Host-Affinity Group settings which can be registered" \(page 375\)](#) for the maximum number of Affinity Groups which can be registered in the ETERNUS DX400/DX8000 series.

#### ■ Host WWN List

##### ● Displayed contents

- Checkbox  
Check the checkboxes for the Affinity Group to delete (multiple selection can be made).
- Affinity Group
  - No.  
Affinity Group identification number is displayed.
    - Not Concatenated: 0xXXX
    - Concatenated: 0xXXX – 0xYYY  
Used for allocating an Affinity Group to CA.
  - Name  
Affinity Group name is displayed.  
Used for allocating an Affinity Group to CA.
- Resource Domain No.  
The Resource Domain number (0x00 – 0x07) to which the Affinity Group belongs is displayed.  
If the Affinity Group is a Shared Resource, [-] (hyphen) is displayed.
- Resource Domain Name  
The Resource Domain name to which the Affinity Group belongs is displayed within 16 characters.  
If the Resource Domain name is not specified, the field is blank.  
If the Affinity Group is a Shared Resource, [Share] is displayed.

**Caution** 

- When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the [Resource Domain No.] and the [Resource Domain Name] are not displayed.
- After refining the Affinity Groups, [Resource Domain No.] and the [Resource Domain Name] are not displayed.

1024 LUNs can be mapped by concatenating two Affinity Groups. To create a concatenated Affinity Group, specify [New Affinity Group] and [Additional Affinity Group].

● Setting item

• New Affinity Group

Affinity Group number(s) (0x000 – 0x1FF) unused in the ETERNUS DX400/DX8000 series are displayed as options in the list box.

To add an Affinity Group, select the Affinity Group number to add from the list box. (required)

**Caution** 

If the maximum number of Affinity Groups have already been created, this item will not appear.

• Additional Affinity Group

Affinity Group number(s) (0x000 – 0x1FF) unused in the ETERNUS DX400/DX8000 series are displayed as options in the list box.

To connect the Affinity Group, select the Affinity Group number to connect from the list box.

**Caution** 

- Do not select the same Affinity Group number as that of [New Affinity Group].
- If the (maximum number – 1) of Affinity Groups have already been created, this item will not appear.

• Affinity Group Name

In the text box, enter the name to assign for the Affinity Group up to 16 characters in ASCII code (0x20 – 0x7E).

Names already in use cannot be assigned. Entering a name is not mandatory.

**Caution** 

If the maximum number of Affinity Groups have already been created, this item will not appear.

• Resource Domain

Select Resource Domain to assign the Affinity Group from the list box.

Shared Resources (Share) and Resource Domains (0x00 – 0x07) registered in the ETERNUS DX400/DX8000 series are displayed as the selection items in the list box. If the Resource Domain name is specified, the Resource Domain name is also displayed. The default setting is "Share".

**Caution** 

When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the "Resource Domain" item is not displayed.

- **Resource Domain to display**  
Select a Resource Domain to refine the displayed Affinity Groups in the [Affinity Group List] from the list box.  
On the list box, All, Shared Resources (Share), and the Resource Domains (0x00 – 0x07) registered in the ETERNUS DX400/DX8000 series are displayed as options. If the Resource Domain name is specified, the Resource Domain name is also displayed. The default setting is "All".

---

**Caution** 

- When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the [Resource Domain to display] is not displayed.
  - After refining the Affinity Groups, the [Resource Domain] field in the [Affinity Group List] is not displayed.
-

## A.22 Set Host Response (Add Host Response)

### A.22.1 Set Host Response (Initial) Screen

On this screen, Host Responses are displayed. Addition/change/deletion of Host Response(s) can be performed here.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed Host Responses differ depending on the current user account.

When logged on using a Total Administrator account, all the Host Responses that are assigned to Resource Domains are displayed. When logged on using a Resource Domain Administrator account, only the Host Responses that are assigned to the relevant Resource Domain, and only the Host Responses that are assigned to the Shared Resource, are displayed.

When Resource Domains are not registered, all the Host Responses registered in the ETERNUS DX400/DX8000 series are displayed.

#### ■ Host Response List

##### ● Displayed contents

- Checkbox  
Use when deleting Host Response.



The [Default] Host Response cannot be deleted.

- Host Response No.  
Identification number (0x01 – 0xFF) or the [Default] of the Host Response is displayed.  
This is used when assigning Host Response to Host WWN, FC-CA Port, iSCSI Host information, or iSCSI-CA Port.
- Host Response Name  
Host Response name is displayed.  
This is used when assigning Host Response to Host WWN, FC-CA Port, iSCSI Host information, or iSCSI-CA Port.
- Resource Domain No.  
The Resource Domain number (0x00 – 0x07) to which the Host Response belongs is displayed.  
If the Host Response is a Shared Resource, [-] (hyphen) is displayed.
- Resource Domain Name  
The Resource Domain name to which the Host Response belongs is displayed within 16 characters.  
If a Resource Domain name is not specified, the field is blank.  
If the Host Response is a Shared Resource, [Share] is displayed.

**Caution** 

When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the [Resource Domain No.] and the [Resource Domain Name] are not displayed.

- Load Balance Support (displayed below the table)  
Indicates whether the sense information requiring retry is sent to the host, if the ETERNUS DX400/DX8000 series is overloaded.

- Enabled: "Retry required" sense information is sent to the host.
- Disabled: "Retry required" sense information is not sent.  
(A "Load Balance Response" is not returned to the host.)

**Caution** 

If changing this setting, please check or uncheck the checkbox of [Disable Load Balance] in the [Set Sub System Parameters] function.

- Checked  
Suppression of Sense Response when the ETERNUS DX400/DX8000 series is overloaded.  
→ Disabled
- Not checked  
No suppression of Sense Response when the ETERNUS DX400/DX8000 series is overloaded.  
→ Enabled (Default)

● Setting item

- Add: Host Response#  
Displays Host Response number(s) unused in the ETERNUS DX400/DX8000 series as options in the list box.  
If adding Host Response, please select a number to assign to the Host Response you are adding.

**Caution** 

If the maximum number of Host Responses have already been created, this item will not appear.

- Name  
In the text box, enter the name to assign for the Host Response up to 16 characters in ASCII code (0x20 – 0x7E).  
Names already in use cannot be entered. Entering a name is not mandatory.

**Caution** 

If the maximum number of Host Responses have already been created, this item will not appear.

- Assignable Resource Domain No.  
Select the Resource Domain to assign the Host Response from the list box.  
Shared Resources (Share) and Resource Domains (0x00 – 0x07) registered in the ETERNUS DX400/DX8000 series are displayed as the selection items in the list box. If a Resource Domain name has been registered, the Resource Domain name is also displayed.  
The default setting is "Share".

**Caution** 

When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the [Assignable Resource Domain No.] is not displayed.

## A.22.2 Set Host Response (Detailed Setting) Screen

On this screen, add/change Host Response information selected in the [Set Host Response (Initial)] screen.



**Note**

For details about the selection guide for each item, refer to the "ETERNUS DX Disk storage systems Server Connection Guide" corresponding to each OS.

● **Setting item**

- **Host Response Name**  
In the text box, enter the name to assign for the Host Response up to 16 characters in ASCII code (0x20 – 0x7E).  
Names already in use cannot be entered. Entering a name is not mandatory.
- **Command Time-out Interval**  
When there is a command request from the host, the response time-out interval is selected by the radio button. When [Custom] is selected, enter the response time-out interval in the text box.  
If no response can be returned to the host for the specified time, that command will be timed out. After that, according to the host specification, retry the command, etc.
  - Standard (25 seconds):  
The response time-out interval is 25 seconds.
  - Custom:  
The time entered in the textbox is the response time-out interval.  
10 – 255 (default: 25)
- **Byte-0 of Inquiry Response**  
After the link between the ETERNUS DX400/DX8000 series and the host is established, an "Inquiry" command to check the volume status in the ETERNUS DX400/DX8000 series is transferred from the host for a specified time. Select a value of byte0 of Inquiry data to respond to this "Inquiry" command using the radio buttons.  
Byte-0 of Inquiry Response indicates the volume status.
  - No Conversion (Default):  
A value saved in the ETERNUS DX400/DX8000 series is sent in response. (Default)
  - Custom:  
When byte0 is "0x20 (configuration definition available / unformatted status)", responds by converting to "0x7f (configuration definition unavailable)".

- Inquiry VPD ID Type  
Select VPD (Vital Product Data) information to respond the host with radio button.  
VPD information includes volume device information (Vendor ID, Product ID for each model, and Logical Volume number, etc.). Type1 and Type3 stands for the data format.
  - Type 1 + Type 3 (Default)
  - Type 1
  - Type 3
- Inquiry Standard Data Version  
Select the Standard Data version of "Inquiry" command (SCSI code version) with the radio button.
  - Version 05 (Default)
  - Version 04
  - Version 03
- Reservation Conflict Response for Test Unit Ready  
When a volume is reserved by another host, choose whether Reservation Conflict to "Test Unit Ready" command is sent in response or not, using the radio buttons.
  - Normal Response (Default):  
Responds in the normal status.
  - Conflict Response:  
Reservation Conflict is sent in response.

**Caution** 

In ANSI SCSI Primary Commands-3 (SPC-3 r15) T10/14146-D Revision 10, specification was changed so that "TUR (Test Unit Ready)" command does not use Reservation Conflict. If the host using this rule is connected, [Normal Response (Default)] is recommended.

- Host Specific Mode  
When connecting a specific host with the ETERNUS DX400/DX8000 series, the expected host operating environment must be set. Select a host mode using the radio buttons.
  - Normal Mode (Default):  
Standard host operating environment. (Default)  
Select this for VMware ESX server connection environments.
  - AIX Mode:  
Select this for AIX (RS/6000, pSeries server) connection environments where the AIX system hosts are to access up to 256 LUNs (0x000 – 0x0FF).
  - AIX Mode (Extended Address):  
Select this for AIX (RS/6000, pSeries server) connection environments where the AIX system hosts are to access up to 512 LUNs (0x000 – 0x1FF).
  - HP-UX Mode (SCC):  
Select this for HP-UX (HP9000, rp series) connection environments where the HP-UX system hosts are to access 8 or more LUNs.
  - Linux/NR1000V Mode (Extended Address):  
Select this for Linux connection environments. Linux system hosts are to access up to 512 LUNs (0x000 – 0x1FF).
- Asymmetric / Symmetric Logical Unit Access  
Select an access status between the host to the volume with the radio button.
  - ACTIVE / ACTIVE (Default):  
When the host and ETERNUS DX400/DX8000 series are connected via multiple paths, any path can be used equally.

- ACTIVE-ACTIVE / PREFERRED\_PATH:

When the host and ETERNUS DX400/DX8000 series are connected via multiple paths, some paths are Active and some are Preferred. Although both path types can access the volumes, the response to the host may be slower when using a Preferred path.

**Caution** 

When using the ETERNUS Multipath Driver, the "Asymmetric / Symmetric Logical Unit Access" setting is disabled. This item is enabled for Multipath drivers that can control Multipath operations between the ETERNUS DX400/DX8000 series and the server, such as Sun Standard Multipath driver or Solaris 10 Leadville (MPxIO) environment.

When using the ETERNUS Multipath driver, the operation is as follows.

- ETERNUS DX410/DX440: ACTIVE-ACTIVE / PREFERRED\_PATH
- ETERNUS DX8100/DX8400/DX8700: ACTIVE / ACTIVE

• LUN Mapping Changes

Select whether or not to report to the host when a LUN that can be seen from the host is added or deleted with the radio button.

- No Report (Default)
- Report

• LUN Capacity Expansion

Select whether or not to report to the host when a Logical Volume capacity is changed with the radio button.

- No Report (Default)
- Report

• Vendor Unique Sense Code

Select whether or not to report asynchronous sense codes to the host. Asynchronous sense codes are Host I/O independent vendor unique sense codes.

- No Report (Default)
- Report

• Sense Code Conversion Pattern

Choose a sense information conversion pattern to convert the specific sense information, using the radio buttons.

- No Conversion (Default):  
Sense information saved in the ETERNUS DX400/DX8000 series is sent in response. Sense information will not be converted. (Default)
- Linux Recommended (When not using GRMPD):  
When GR/ETERNUS Multipath Driver is not used, converted sense information is sent in response, so as not to have the Linux host operate incorrectly.
- Windows Recommended (When not using GR/ETERNUS MPD or Device Driver):  
When ETERNUS Multipath Driver or device driver is not used, converted sense information is sent in response, so as not to have Windows host operate incorrectly.
- Custom:  
When a conversion pattern of the specified sense code set as [Custom] in the ETERNUS DX400/DX8000 series is enabled, this radio button is marked, and [Detail] button is displayed.  
The conversion pattern of the specified sense code cannot be newly created.

---

**Caution** 

---

When [Custom] is disabled, the radio button for [Custom] is not displayed.

---

● Displayed contents

• Load Balance Response

When [Load Balance Support] displayed in the [Host Response (Initial)] screen is [Enabled], the response status to request retry to the host is displayed.

If it is [Disabled], [Disabled] is displayed in this field.

- If [Load Balance Support] is [Enabled], the following response status is returned to the host.
  - Unit Attention (Default)
  - Busy
  - Queue Full
- If [Load Balance Support] is [Disabled], the response status is not returned to the host.
  - [Disabled] Unit Attention
  - [Disabled] Busy
  - [Disabled] Queue Full

---

**Caution** 

---

This item is only for display. It cannot be changed.

---

## A.23 Release Reservation

### A.23.1 Release Reservation (Select Volume) Screen

This screen displays a list of the Logical Volumes that are Open Volumes (Open/SDV/TPV/MVV) with Reservation Keys or that are in Reservation status. Select the selection method for volumes to be released from Reservation status.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed Open Volumes differ depending on the current user account.

When logged on using a Total Administrator account, all the Open Volumes in Reservation status that are assigned to Resource Domains, or all the Open Volumes with Reservation Keys that are assigned to Resource Domains, are displayed. When logged on using a Resource Domain Administrator account, only the Open Volumes in Reservation status that are assigned to the relevant Resource Domain and Shared Resource, or only the Open Volumes with Reservation Keys that are assigned to the relevant Resource Domain and Shared Resource, are displayed. When Resource Domains are not registered, Open Volumes registered in the ETERNUS DX400/DX8000 series with Reservation keys or that are in Reservation status are displayed.

#### ● Setting item

- Radio button

Select the selection method for volumes to be released from Reservation status.

- Select All Volumes
- Select Individual Volumes (Default)

- Checkbox

Select the volumes for release Reservation. (Multiple selections allowed.)



**Caution**

The checkbox is enabled only when the [Select by unit of Volume] radio button is checked.

#### ■ Logical Volume List

#### ● Displayed contents

- Logical Volume#

The Logical Volume numbers of the selected volumes are displayed.

- Name

The Logical Volume name is displayed.

If a Logical Volume name is not specified, the field is blank.

- CA Port/Affinity Group

The ID number and name of the Affinity Group that maps onto the target volume are displayed. If the Host Affinity function is not used, the CA Port number is displayed.

If it is not Reserved, [-] is displayed.

- LUN  
The Logical Unit Number for the target volume is displayed. The Logical Unit Number is the number assigned to each volume that the host can recognize.  
If it is not Reserved, [-] is displayed.
- Registrants  
The number of Reservation Keys (0 – 64) for the target volume is displayed.
- Reservation Type  
The Persistent Reservation type for the target volume is displayed.
  - WE (Write Exclusive)
  - EA (Exclusive Access)
  - WE-RO (Write Exclusive-Registrants Only)
  - EA-RO (Exclusive Access-Registrants Only)
  - WE-AR (Write Exclusive-All Registrants)
  - EA-AR (Exclusive Access-All Registrants)If it is not in Persistent Reservation status, [-] is displayed.
- Persistent  
The Persistent Reservation status of the target volume is displayed.
  - Yes: In Persistent Reservation status
  - No: In Reserved status
  - -: Only the Reservation Key is registered
- APTPL  
Whether to keep the Persistent Reservation information of the target volume after shutting down/rebooting is displayed.
  - Yes: Keeps the Persistent Reservation information
  - No: Does not keep the Persistent Reservation information[No] is displayed if the Logical Volume is in Reserved status different than Persistent Reservation.
- Resource Domain No.  
The Resource Domain number (0x00 – 0x07) to which the volume belongs is displayed.  
For a Shared Resource volume, or volume that cannot be assigned to the Resource Domains, [-] (hyphen) is displayed. Volumes that cannot be assigned to the Resource Domain are as follows:
  - MVV(G), MVV(H), or MVV(K)
- Resource Domain Name  
The Resource Domain name to which the volume belongs is displayed within 16 characters.  
If a Resource Domain name is not specified, the field is blank.  
For a Shared Resource volume, [Share] is displayed. For a volume that cannot be assigned to the Resource Domains, [-] (hyphen) is displayed.

---

**Caution**



When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the [Resource Domain No.] and the [Resource Domain Name] are not displayed.

---

## A.23.2 Release Reservation (Detail) Screen

---

Details of the hosts that are able to access the target volume are displayed.

If the volume has Reservation Keys registered, the number of hosts shown will equal the number of keys. If the volume has no Reservation Keys registered, only the one host is shown, with the volume Reserved.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed Host WWNs or iSCSI Names differ depending on the current user account.

When logged on using a Total Administrator account, all the Host WWNs or iSCSI Hosts that are assigned to Resource Domains are displayed. When logged on using a Resource Domain Administrator account, only the Host WWNs or iSCSI Hosts that are assigned to the relevant Resource Domain, and only the Host WWNs or iSCSI Hosts that are assigned to the Shared Resource, are displayed.

When Resource Domains are not registered, all the Host WWNs or iSCSI Hosts registered in the ETERNUS DX400/DX8000 series are displayed.

● Displayed contents

- Host WWN/iSCSI Name  
WWN(s) or iSCSI names for the host that can access the target volume are displayed.
- CM# - CA# - Port#  
Location information for the ETERNUS DX400/DX8000 series CA port that is connected to the host is displayed.
- Reservation Key  
The identification information of the host for Persistent Reservation of the target volume is displayed.  
However, when no Reservation Key exists, [-] (hyphen) is displayed.
- Hold Reservation  
The Persistent Reservation status of the volume by the target Key is displayed.
  - Yes: In Persistent Reservation status
  - No: Not in Persistent Reservation status

[Yes] is displayed if the Logical Volume is in Reserved status different from Persistent Reservation.

## A.24 Set Sub System Parameters

### A.24.1 Set Sub System Parameters (Initial) Screen

On this screen, the status of sub system parameters set on the ETERNUS DX400/DX8000 series is displayed. Change the sub system parameters on this screen if necessary.

#### ■ Sub System Parameters

##### ● Setting item

##### • Disable Load Balance

This sets [Suppressed/Not Suppressed] for sense response that requests host retry in an overload situation in ETERNUS DX400/DX8000 series.

Check this checkbox if sense response does not request host retry. The default setting is "Not Suppressed".

- Checked: Suppressed (No response)
- Not Checked: Not Suppressed (Respond)

#### Caution

- If [Disable Load Balance] is set to [Not Suppressed (Respond)], then when the ETERNUS DX400/DX8000 series is overloaded, it returns the [Load Balance Support] sense indicated in the [Set Host Response] function to the host.
- If connecting HP-UX system hosts to the ETERNUS DX400/DX8000 series, suppress warning sense, which is the response of the ETERNUS DX400/DX8000 series under overload conditions, by setting [Disable Load Balance] to [Suppressed (No response)]. If [Disable Load Balance] is set to [Not Suppressed (Respond)], inappropriate log may be recorded on the hosts.
- If [Disable Load Balance] is set to [Not Suppressed (No response)], hosts connected to the ETERNUS DX400/DX8000 series (all hosts including non-HP-UX) do not receive sense response even if the ETERNUS DX400/DX8000 series is in overload status.

##### • The copy between Resource Domains is permitted

Select whether to [Permit / Do not permit] the Advanced Copy between Resource Domains. The default setting is "Permit".

- Checked:  
Permit
- Not checked:  
Do not permit

This setting is available only when connecting with Open system host.

#### Caution

When logged on using a Resource Domain Administrator account, the [The copy between Resource Domains is permitted] is not displayed.

- Reject INQUIRY from Unauthorized Host  
Select whether to [Reject / Do not reject] the "Inquiry" command from an unauthorized host. When rejecting, ETERNUS DX400/DX8000 series returns an Affinity Error (5/25/81) for the "Inquiry" command from the unauthorized host. The default setting is "Do not reject".
  - Checked:  
Reject (Report Error for the "Inquiry" command from the unauthorized host.)
  - Not checked:  
Do not reject (Do not report Error for the "Inquiry" command from the unauthorized host.)

This setting is available only when connecting with Open system host.

---

**Caution** 

Check [Reject INQUIRY from Unauthorized Host] when VxVM DMP is used. When VxVM DMP is not used, this setting does not affect device operation whether it is enabled or disabled.

---

## A.25 Set REC Priority

### A.25.1 Set REC Priority (Speed Setting) Screen

This screen displays speed information between the local device and the remote device. If you change the setting, set appropriate values.

- Setting item
  - Remote Box ID  
The Box ID of the remote device is displayed.
  - [Connection Type] radio button  
Select a connection type between the local device and the remote device with the radio button.
    - Direct Connection: (Default)  
Directly connects the local device with the remote device without using lines. Even when it is a connection using a switch, if you don't use lines, select [Direct Connection].
    - Remote Connection:  
This connects the local device and the remote device via lines.

#### Caution

When [Direct Connection] is selected, REC operates with the speed mode specified by [Set EC/OPC Priority].

- Remote Connection
  - [Volume Type] radio button  
Select a volume type of the copy target (Open Volume, Mainframe Volume) using the radio buttons.  
If two types of copy target volumes coexist, select [Open Volume].  
The default setting is "Open Volume".

#### Caution

When Connection Type is [Remote Connection], this is enabled.

- Link Speed  
This sets the speed that is calculated by line speed and number of lines.  
Set the speed from 1 – 65535 (Mbit/s).  
Refer to "Calculation method of effective line speed".

#### Caution

- When Connection Type is [Remote Connection], this is enabled.
- When it is not set or Connection Type is [Direct Connection], [0 (Mbit/s)] is displayed.

- Compression Ratio

When the line device has a data compression function, select the compression rate (the mean value) of the compressed data from the list box.

Set the compression ratio from 0 – 99 (%).

When the line device does not have a data compression function, set "0 (%)".

(Example)

For a line device whose average data transfer is reduced to 60% of the original size, set a compression ratio of "40 (%)".

**Caution**



- When Connection Type is [Remote Connection], this is enabled.
- When this is not set or Connection Type is [Direct Connection], [0 (%)] is displayed.

- Response Time

The turn-around response time between the local device and the remote device is set.

When you click the [Refresh] button, response time is measured again.

**Caution**



- When Connection Type is [Remote Connection], this is enabled.
- When this is not unmeasured or Connection Type is [Direct Connection], [0 (msec)] is displayed.

■ Calculation method of effective line speed

Link speed for the connection between the local device and a given remote device is calculated by totalling the aggregate line speeds.

When using an iSCSI-RA as a remote interface and limiting the WAN bandwidth usage with a bandwidth controller connected to the ETERNUS DX400/DX8000 series, set the "Bandwidth Limit" value specified in ["A.18.7 Set CA Parameters \(iSCSI-RA Detailed Settings\) Screen" \(page 752\)](#).

Link Speed = Total Line Speed

- Total Line Speed:

Aggregate speed of all lines used for REC sessions between the local device and remote device.

(Examples 1) When a bandwidth controller is not used

- Line speed: 128Mbit/s
- Number of lines: 4 (all 128Mbit/s)

Link Speed = 128Mbit/s × 4 = 512Mbit/s

(Examples 2) When a bandwidth controller is used

- Line speed (= Bandwidth Limit value): 100Mbit/s
- Number of lines: 2 (both 100Mbit/s)

Link Speed = 100Mbit/s × 2 = 200Mbit/s

Set the actually REC-usable WAN bandwidth (for multiple lines, set the total bandwidth value) as the "Link Speed". If the REC-usable WAN bandwidth is being limited by a bandwidth controller, set the relevant value. Since the ETERNUS DX400/DX8000 series are not able to limit their WAN bandwidth usage, a bandwidth controller must be used to limit it for them.

## A.26 Set Advanced Copy Table Size

### A.26.1 Set Advanced Copy Table Size (Initial) Screen

The Advanced Copy table size and resolution registered in the device are displayed on this screen. When changing the value, select the appropriate value from the list box by taking the amount of copy data and the number of active sessions into consideration.

- Setting item

- Table Size

Select the Advanced Copy table size from the list box.

- 0: copy function not supported (Default)
- ETERNUS DX410/DX440: 0 – 136(MB) (integer multiples of 8)
- ETERNUS DX8100: 0 – 136(MB) (integer multiples of 8)
- ETERNUS DX8400/DX8700: 0 – 528(MB) (integer multiples of 8)

- Resolution

Select bitmap resolution (the size can be mapped by 1 bit) from the list box.

Select the resolution "1" (x1) as the standard resolution 8 (KB/bit).

- Resolution: x1 (Default), x2, x4, x8, x16

---

**Caution** 

When using REC, set the "Resolution" of the devices which will become copy source / copy destination to the same value.

---

## A.27 Set REC Buffer

### A.27.1 Set REC Buffer (Set) Screen

The REC Buffer information is set or changed on this screen.

For new settings, Box ID list is displayed for selection. When changing already set REC Buffer settings, Box ID cannot be changed.

#### ■ REC Buffer setting situation

##### ● Setting item

###### • BoxID

The remote Box ID is displayed.

Select the Box ID of the remote device that is connected to the local device, for new settings.



###### **Caution**

List box is displayed only when an unused management group is selected.

Note that [-] is for initial display only and cannot be selected.

###### • Type

The copy type where the relevant REC Buffer is used is displayed.

###### • Size (MB) (\*1)

The relevant REC Buffer size per CPU (128, 256, 512, 1024, or 2048 MB) can be selected.

When changing REC Buffer settings, the current REC Buffer size is displayed as the initial display.



###### **Caution**

Only available size will be displayed as options.

Note that [-] is for initial display only and cannot be selected.

###### • Usage

The relevant REC Buffer usage (Receive/Send) can be selected. When changing REC Buffer settings, the current REC Buffer usage is displayed as the initial display.



###### **Caution**

• "Not used" is for initial display only and cannot be selected.

• To set REC Buffer unused, delete the REC Buffer.

###### • Forwarding interval (seconds)


Data forwarding interval (1, 2, 4, 8, 15, 30, 45, 60, 75, 90, 105, or 120 seconds) can be selected.

A long forwarding interval reduces influence on the host I/O. However, it causes large data loss in a time of disaster. The recommended setting value is "1 (second)".


When changing REC Buffer settings, the current forwarding interval is displayed as the initial display.

**Caution**  [-] is for initial display only and cannot be selected.

- Watch time (minutes)  
The watch time (0, 1, ... 14, 15 minutes) for REC Buffer shortage can be selected.  
If the REC Buffer overload exceeds the specified time, REC session status automatically changes to [HALT] status.  
When setting "0" in this field, REC Buffer monitoring cannot be used. The recommended setting value is "5 (minutes)".  
When changing REC Buffer settings, the current watch time is displayed as the initial display.

**Caution**  [-] is for initial display only and cannot be selected.

- HALT wait timer (seconds)  
The HALT wait time (0, 5, 10, 15 seconds) can be selected.  
HALT wait time is the waiting time for response to the Host I/O to give priority to REC Buffer control when the Host I/O load is high. If the waiting time exceeds the specified time, response to the Host I/O is restarted. However, the REC session status automatically changes to [HALT] status. The recommended setting value is "15 (seconds)".  
When changing REC Buffer settings, the current HALT wait timer is displayed as the initial display.

- Caution**  • [-] is for initial display only and cannot be selected.
- When the "HALT wait timer" item is added with the firmware updating, "15 (seconds)" is specified as default.

- \*1: The total capacity of REC Buffers that can be created in the device is 8GB. Up to eight REC Buffers can be created (when creating REC Buffers with the maximum capacity, up to four REC Buffers can be created). Note that when bind-in-cache is used, specifying the maximum capacity may not be possible. In addition, specifying the maximum capacity may not be possible depending on the capacity of memories that are installed in the device, regardless of whether bind-in-cache is used.  
A REC Buffer cannot be created when the memory capacity to be assigned for the REC Buffer is less than the following values.

Device type	Minimum memory capacity per CM
ETERNUS DX410	128 (MB)
ETERNUS DX440	256 (MB)
ETERNUS DX8100	256 (MB)
ETERNUS DX8400	256 (MB)
ETERNUS DX8700	256 (MB)

## ■ Assigned REC Disk Buffer

### ● Setting item

#### • Checkbox

The REC Disk Buffers assigned to the relevant REC Buffer are displayed. Select the REC Disk Buffers to be released (multiple selections can be made).

---

**Caution**

One, two, or four (one or two for ETERNUS DX410) REC Disk Buffers can be assigned to a single REC Buffer.

---

### ● Displayed contents

#### • RAID Group No.

The RAID Group number for the relevant REC Disk Buffer is displayed in 3-digit hexadecimal.

#### • RAID Group Name

The RAID Group name for the relevant REC Disk Buffer is displayed within 16 characters. If a RAID Group name is not specified, the field is blank.

#### • Status

The status of the relevant REC Disk Buffer is displayed.

#### • Capacity (MB)

The capacity of the relevant REC Disk Buffer is displayed in MB.

#### • Disk Kind

The disk type (FC or SSD) of the relevant REC Disk Buffer is displayed.

#### • Disk Count

The number of disks (4 or 8) in the relevant REC Disk Buffer is displayed.

#### • Encryption

The encryption status (Yes or -) of the relevant REC Disk Buffer is displayed.

- Yes: Encrypted REC Disk Buffer

- - : Non-encrypted REC Disk Buffer

---

**Caution**

The "Encryption" is displayed when the encryption function has been enabled.

---

#### • Controlling CM

The Controlling CM and CPU for the relevant REC Disk Buffer are displayed.

## A.27.2 Set REC Buffer (Add REC Disk Buffer) Screen

---

Assigns the REC Disk Buffer to the relevant REC Buffer on this screen.

### ■ REC Disk Buffer List

#### ● Setting item

##### • Checkbox

The REC Disk Buffers are displayed. The checkbox is displayed for the REC Disk Buffer (\*1) that can be assigned to the relevant REC Buffer. Select the new REC Disk Buffers to be assigned (multiple selections can be made).

\*1: A REC Disk Buffer that is not assigned to any REC Buffer with a capacity larger than the smallest REC Disk Buffer that has already been assigned.

---

#### **Caution**

- One, two, or four (one or two for ETERNUS DX410) REC Disk Buffers can be assigned to a single REC Buffer.
  - The number of disks (4 or 8), disk type (FC or SSD), and the encryption status (Yes or -) of the REC Disk Buffer must be matched.
  - When assigning multiple REC Disk Buffers to a single REC Buffer, the REC Disk Buffer capacity must be the same.
- 

Refer to the descriptions in ["Assigned REC Disk Buffer" \(page 780\)](#) for detailed items of REC Disk Buffer List.

## A.28 Set SNMP Agent Environment

### A.28.1 Set SNMP Agent Environment (Initial) Screen

The content of current settings is displayed as the SNMP Agent Environment on this screen. When addition or change is necessary, set [Community], [View], [Trap], [Device Unique Information] and [Transfer Authentication Error].

#### ■ SNMP Function Setting

##### ● Displayed contents

- SNMP Function  
Current SNMP function status (Enable/Disable) is displayed.

##### ● Setting item

- SNMP Function  
SNMP function is turned on/off by selecting the "Enable" or "Disable" radio button. Initially, "Disable" is selected by default.

#### ■ SNMP Agent Configuration Setting

##### ● Setting item

- Community  
Community is the range of communication network at SNMP.  
This item is applies to the password used to access the SNMP Agent in the relevant device. When "Community name announced by SNMP Manager" and "Community name of SNMP Agent" match, SNMP Agent permits a request from Manager.  
Community is set in the following format.  
When no Community is set, "public" (access: readOnly, address: all hosts, and view: all Objects) is set by an initial value.

Command form: community name [address [access [view]]]
--

- community (cannot be omitted): "community" command
  - The number of commands: up to 30.
  - It is possible to belong to multiple Communities at the same time. In that case, define multiple Communities
- name (cannot be omitted): The community name where the relevant Agent belongs
  - Refer to "Input character of SNMP agent setting item" for the limitations of usable letters.
- address (can be omitted): IP Address of the Manager
  - By specifying "0.0.0.0" for address or skipping address, acceptance from all hosts becomes possible.

- access (can be omitted): Access privileges of Manager in the community
  - Set either [readOnly], [writeOnly], [readWrite], or [none].
    - readOnly: Only reading is permitted (when omitted).
    - writeOnly: Only writing is permitted.
    - readWrite: Both reading and writing are permitted.
    - none: Neither reading nor writing is permitted.
- view (can be omitted): MIB View which is accessed at this community
  - Use the name specified by [name] of "View" command.
  - Refer to "Input character of SNMP agent setting item" for the limitations of usable letters.
  - When omitted, all Objects can be accessed.

- View

View (MIB View) decides access range of the Management Information Base (MIB) database with a tree type structure.

MIB is the management information collected as a database to communicate with the Agent in order for the Manager to control the Agent. In order to access from the Manager, all management information is named on the tree and hierarchically systematized. View decides which information in the MIB information tree can be accessed by SNMP Manager. View is used to open only a part of the information held by MIB.

Command form: view name [subtree...]
--------------------------------------

- view (cannot be omitted): "view" command
  - The number of commands: up to 30.
- name (cannot be omitted): Name of MIB View
  - Specify the view name in the Object ID format (example: 1:1).  
The Object ID can be specified regardless of whether the ID exists or not in the ETERNUS DX400/DX8000 series.
  - Refer to "Input character of SNMP agent setting item" for the limitations of usable letters.
- subtree (can be omitted): Partial tree of MIB Objects built in MIB View
  - All MIB Objects under the control of the specified partial tree are built in MIB View.
  - Up to 15 can be specified.
  - Refer to "Input character of SNMP agent setting item" for the limitations of usable letters.
  - When omitted, all MIB Objects under the control of the Agent are built in MIB View.

- Trap

Trap is used for notifying the Manager of the device status.

Command form: trap name address [view [generics]]
---

- trap (cannot be omitted): "trap" command
  - The number of commands: up to 50.
- name (cannot be omitted): Community name to transfer Trap
  - Refer to "Input character of SNMP agent setting item" for the limitations of usable letters.
- address (cannot be omitted): IP Address of the Trap destination

- view: trap view
  - The form of Object ID is used.

#### ■ Input character of SNMP agent setting item

- Community
    - name  
Up to 50 characters can be input.
    - view  
Up to 60 characters can be input.
  - View
    - name  
Up to 60 characters can be input.
    - subtree  
Up to 60 characters can be input.  
Even when specifying multiple subtrees, a total of up to 60 characters can be input.
  - Trap
    - name  
Up to 50 characters can be input.  
Characters which can be input is as follows.
    - Alphanumeric
    - Alphanumeric symbols [!], [#], [\$], [%], [&], [\_], [+], [-], [\*], [/] can be used.
    - Differentiates between capital letters and lower case
    - Space character (0x20) (\*1)
- \*1: The "Community" command and the "Trap" command allow entering [""] (double quotation) when "name" includes the space character. Enclose [name] with [""] when [name] includes the space character (example "Test 1").  
In this case, this [""] is counted as one character.

#### ■ Setting of device unique information

- Description  
The explanation about the device is shown.  
Up to 50 characters can be input.
- Administrator  
The administrator name of the device is shown.  
Up to 50 characters can be input.
- Name  
The name of the device is shown.  
Up to 50 characters can be input.
- Installation Site  
The installation site of the device is shown.  
Up to 50 characters can be input.  
Characters which can be input is as follows.
  - Alphanumeric
  - Alphanumeric symbols [!], [#], [\$], [%], [&], [\_], [+], [-], [\*], [/] can be used.
  - Differentiates between capital letters and lower case
  - Space character (0x20) (\*1)

\*1: The "Community" command and the "Trap" command allow entering [""] (double quotation) when "name" includes the space character. Enclose [name] with [""] when [name] includes the space character (example "Test 1").  
In this case, this [""] is counted as one character.

■ Transfer Authentication Error radio button

- transfer  
When an authentication error occurs, the Trap message is sent (Default)
- not transfer  
When an authentication error occurs, the Trap message is not sent.

■ Report abnormal status of parts while maintenance work (MIB)

- report  
Status during the maintenance period is reported to the Extended MIB Definition file under the SNMP Agent Environment. (Default)
- not report  
Status during the maintenance period is not reported to the Extended MIB Definition file under the SNMP Agent Environment.  
Even if the Extended MIB Definition file is downloaded during the maintenance period (between [Start Maintenance] and [End Maintenance]), the device and component status are displayed as "Normal".

## A.29 Set Eco-mode Schedule

### A.29.1 Set Eco-mode Schedule (Set) Screen

Set the Eco-mode schedule.

Up to eight Constantly Active Disk Terms can be set for one schedule to operate the Eco-mode. Assign the created schedule to the RAID Groups or Thin Provisioning Pools to enable the Eco-mode and activate the disk motor constantly during the specified term. Outside these times disk activation/deactivation will occur in response to disk accesses.

- Setting item

- Schedule Name

Enter a name for each Eco-mode schedule in the Schedule Name text box.

Up to 16 ASCII characters (0x20 – 0x7E) may be used.

**Caution** 

Schedule Names already in use cannot be assigned. Entering a name is not mandatory.

- Radio button (Constantly Active Disk Term)

Select the target [Constantly Active Disk Term] to be deleted/copied/changed/changed the order.

- Radio button (Template)

Select the template for the constantly active disk term.

- Daily Template
    - Weekly Template
    - Specified Date Template
    - Specified Week Template

For details, see the description of each template.

- Daily Template

Select when adding/editing the constantly active disk term daily and set the start and end time.

- Start time: Hour can be set among 0 – 23 and minute can be specified as 00 or 30. (Default: 0:00)
    - End time: Hour can be set among 0 – 23 and minute can be specified as 00 or 30. (Default: 0:00)

Refer to the ["Eco-mode Setting Example" \(page 788\)](#).

**Caution** 

- If the specified end time is earlier than the start time, the end time is set to the next day.
  - The same time cannot be specified for start/end time.

- **Weekly Template**

Select when adding/editing the constantly active disk term weekly and set the start and end time.

- Start day: Sunday – Saturday (Default: Monday)
- End day: Sunday – Saturday (Default: Monday)
- Start time: Hour can be set among 0 – 23 and minute can be specified as 00 or 30. (Default: 0:00)
- End time: Hour can be set among 0 – 23 and minute can be specified as 00 or 30. (Default: 0:00)

Refer to the ["Eco-mode Setting Example" \(page 788\)](#).

---

**Caution** 

- If the specified end time is earlier than the start time, the end time is set to the next day.
- The same time cannot be specified for start/end time.
- The setting that passes Sunday cannot be specified for the start and end week.

---

- **Specified Date Template**

Select when adding/editing the constantly active disk term on a specified date and set the sequential start and end time for start/end month and day.

- Start month: Every month, January – December (Default: Every month)
- Start day: 1 – 31 (Default: 1)
- End day: The day, The next day, 2 – 7 days after (Default: The day)
- Start time: Hour can be set among 0 – 23 and minute can be specified as 00 or 30. (Default: 0:00)
- End time: Hour can be set among 0 – 23 and minute can be specified as 00 or 30. (Default: 0:00)

Refer to the ["Eco-mode Setting Example" \(page 788\)](#).

---

**Caution** 

- An end time earlier than start time cannot be specified (when the end day is "The day").
  - A constantly active disk term longer than one week cannot be specified (when the end day is "7 days later" and the end time is later than the start time).
  - Months or dates that do not exist cannot be specified.
-

- Specified Week Template

Select when adding/editing the constantly active disk term in a specified week and set the start month, the number of the week (\*1), day of the week, and start/end time.

\*1: Specify the start day of the week as the first seven days of the month as "1st". Does not apply for the end day.

- Start month: Every month, January – December (Default: Every month)
- Number of the week: 1st – 5th (Default: 1st)
- Start day: Sunday – Saturday (Default: Monday)
- End day: Sunday – Saturday (Default: Monday)
- Start time: Hour can be set among 0 – 23 and minute can be specified as 00 or 30. (Default: 0:00)
- End time: Hour can be set among 0 – 23 and minute can be specified as 00 or 30. (Default: 0:00)

Refer to the ["Eco-mode Setting Example" \(page 788\)](#).

### Caution

- If the specified end time is earlier than the start time, the end time is set to the next day.
- The same time cannot be specified for start/end time.
- The day after the next Sunday cannot be specified as a start/end day.

### Eco-mode Setting Example

Template	Setting	Active disk term
Daily Template	Start time: 8:00 End time: 21:00	Everyday The day 8:00 - The day 21:00
	Start time: 8:00 End time: 6:00	Everyday The day 8:00 - The next day 6:00
Weekly Template	Start day: Monday End day: Friday Start time: 8:00 End time: 21:00	Monday The day 8:00 - The day 21:00 Tuesday The day 8:00 - The day 21:00 ↓ Friday The day 8:00 - The day 21:00
	Start day: Monday End day: Friday Start time: 8:00 End time: 6:00	Monday The day 8:00 - The next day (Tuesday) 6:00 Tuesday The day 8:00 - The next day (Wednesday) 6:00 ↓ Friday The day 8:00 - The next day (Saturday) 6:00
Specified Date Template	Start month: Each month Start date: 1st End date: 5 days after Start time: 8:00 End time: 21:00	January 1st 8:00 - January 6th 21:00 February 1st 8:00 - February 6th 21:00 ↓ December 1st 8:00 - December 6th 21:00
	Start month: August Start date: 10th End date: 7 days after Start time: 8:00 End time: 6:00	August 10th 8:00 - August 17th 6:00

Template	Setting	Active disk term
Specified Week Template (For 2010)	Start month: Each month Start week: first Start day: Monday End day: Friday Start time: 8:00 End time: 21:00	January 4th (Mon) The day 8:00 - The day 21:00 January 5th (Tue) The day 8:00 - The day 21:00 ↓ January 8th (Fri) The day 8:00 - The day 21:00  February 1st (Mon) The day 8:00 - The day 21:00 ↓ February 5th (Fri) The day 8:00 - The day 21:00 • • • December 6th (Mon) The day 8:00 - The day 21:00 ↓ December 10th (Fri) The day 8:00 - The day 21:00
	Start month: November Start week: third Start day: Monday End day: Wednesday Start time: 8:00 End time: 6:00	November 15th (Mon) The day 8:00 - The next day 6:00 (November 16th (Tue) 6:00) November 16th (Tue) The day 8:00 - The next day 6:00 (November 17th (Wed) 6:00) November 17th (Wed) The day 8:00 - The next day 6:00 (November 18th (Thu) 6:00)

## A.30 Set RAID Group-Eco-mode

### A.30.1 Set RAID Group-Eco-mode (Set) Screen

Set the Eco-mode specifications in the RAID group.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed RAID Groups differ depending on the current user account.

When logged on using a Total Administrator account, all the RAID Groups that are assigned to Resource Domains are displayed. When logged on using a Resource Domain Administrator account, only the RAID Groups that are assigned to the relevant Resource Domain, and only the RAID Groups that are assigned to the Shared Resource, are displayed.

When Resource Domains are not registered, all the RAID Groups registered in the ETERNUS DX400/DX8000 series are displayed.

#### ■ Set RAID Group-Eco-Mode

##### ● Setting item

##### • Set Range

##### - From RAID Group#

Set the start of the Eco-mode schedule range as a 3-digit hexadecimal RAID group number.

##### - To RAID Group#

Set the end of the Eco-mode schedule range as a 3-digit hexadecimal RAID group number.

##### - [Eco-mode Schedule (ON/OFF)] check box

Sets the Eco-mode schedule range specification to ON (enabled) or OFF (disabled: default).

If the check box is selected, the Eco-mode schedule is ON. If not selected, the Eco-mode schedule is OFF.

##### - [Eco-mode Schedule (Schedule)] list box

Selects the Eco-mode schedule whose range specification is to be set.

Default: "None".

#### Caution

- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Eco-mode schedules for the RAID Groups that are assigned to the same Resource Domain as the selected Eco-mode schedule (except the Eco-mode schedules registered as the Shared Resource) will be changed.

- When logged on using a Resource Domain Administrator account, only the Eco-mode schedules that are assigned to the relevant Resource Domain, and only the Eco-mode schedules that are assigned to the Shared Resource, are displayed.

- [Eco-mode Schedule] radio button  
Specifies what is set when the Eco-mode schedule is applied to the target RAID group (Default: Unselected).
  - ON/OFF only  
Only whether the Eco-mode is on or off is set for the target RAID group.
  - Schedule only  
Only the Eco-mode schedule is set for the target RAID group.
  - Both  
Both whether the Eco-mode is on or off and the Eco-mode schedule are set for the target RAID group.
- Manual setting
  - [Eco-mode Schedule (ON/OFF)] check box  
Sets the Eco-mode schedule for the target RAID group to ON or OFF (Default).  
If this box is checked, the Eco-mode schedule is ON. If this box is not checked, the Eco-mode schedule is OFF.

---

**Caution**



- Not displayed for the RAID group, other than Open, SDV, or SDPV.
- Not displayed for RAID Groups that are configured with SSD.
- Not displayed for RAID Groups that are configured with system disks.
- Not displayed for RAID Groups that are registered as a REC Disk Buffer.

- 
- [Eco-mode Schedule (Schedule)] list box  
Specify the Eco-mode schedule of the target RAID Group.  
Default: "None".

---

**Caution**



- Not displayed for the RAID group, other than Open, SDV, or SDPV.
  - Not displayed for RAID Groups that are configured with SSD.
  - Not displayed for RAID Groups that are configured with system disks.
  - Not displayed for RAID Groups that are registered as a REC Disk Buffer.
  - If the Storage Foundation Software ETERNUS SF manages the Eco-mode, "External" management is displayed for the relevant RAID Groups.
  - When Resource Domains are registered in the ETERNUS DX400/DX8000 series, only the Eco-mode schedules that are assigned to the same Resource Domain as the relevant RAID Group and the Shared Resource, are displayed in the list box.
-

● Displayed contents

• Disk Status

Disk status of the target RAID Group is displayed.

- active
- idle
- in the boot process
- in the stop process

**Caution** 

Access to the disks under [in the boot process] or [in the stop process] is not allowed.

• Control Status

Disk control status of the relevant RAID Group by the Storage Foundation Software ETERNUS SF is displayed.

- ON:  
The relevant RAID Group accepts the disk motor ON request from the Storage Foundation Software ETERNUS SF.
- OFF:  
The relevant RAID Group accepts the disk motor OFF request from the Storage Foundation Software ETERNUS SF.
- [-] (hyphen):  
[External] management is not available for the relevant RAID Group.

Refer to ["A.3.1 RAID Group List \(Initial\) Screen" \(page 673\)](#) for other RAID Group list items.

■ Eco-mode cooperation function

The Eco-mode schedule function settings of ETERNUSmgr ("ON"/"OFF" modes) and the Eco-mode management function settings of the Storage Foundation Software ETERNUS SF ("External" mode) do not match up nicely. The following table shows the allowed RAID Group Eco-mode change paths between these settings.

Current Eco-mode	New Eco-mode setting		
	Disabled (OFF)	Enabled (ON)	External mode
Disabled (OFF)	—	Yes	No
Enabled (ON)	Yes	—	No
External mode	Yes	Yes	—

Yes: Current Eco-mode can be changed to this Eco-mode

No: Current Eco-mode may not be changed to this Eco-mode

Refer to manuals of each software for detailed information about Eco-mode setting using the Storage Foundation Software ETERNUS SF.

## A.31 Set Thin Provisioning Pool-Eco-mode

### A.31.1 Set Thin Provisioning Pool-Eco-mode (Set) Screen

Set the Eco-mode specifications in the Thin Provisioning Pool.

When Resource Domains are registered in the ETERNUS DX400/DX8000 series, the displayed TPPs differ depending on the current user account.

When logged on using a Total Administrator account, all the TPPs that are assigned to Resource Domains are displayed. When logged on using a Resource Domain Administrator account, only the TPPs that are assigned to the relevant Resource Domain, and only the TPPs that are assigned to the Shared Resource, are displayed.

When Resource Domains are not registered, all the TPPs registered in the ETERNUS DX400/DX8000 series are displayed.

#### ■ Set Thin Provisioning Pool-Eco-mode

##### ● Setting item

##### • Set Range

##### - From TPP No.

Set the Thin Provisioning Pool number (0x0 – 0xFF) to be the start position of the Eco-mode schedule range.

##### - To TPP No.

Set the Thin Provisioning Pool number (0x0 – 0xFF) to be the end position of the Eco-mode schedule range.

##### - [Eco-mode Schedule (ON/OFF)] check box

Select ON/OFF (Default) of Eco-mode schedule for range specification.

If this box is checked, the Eco-mode schedule is ON. If this box is not checked, the Eco-mode schedule is OFF.

##### - [Eco-mode Schedule (Schedule)] list box

Select the Eco-mode schedule for range specification.

#### Caution



- When Resource Domains are registered in the ETERNUS DX400/DX8000 series, Eco-mode schedules for the TPPs that are assigned to the same Resource Domain as the selected Eco-mode schedule (except the Eco-mode schedules registered as the Shared Resource) will be changed.

- When logged on using a Resource Domain Administrator account, only the Eco-mode schedules that are assigned to the relevant Resource Domain, and only the Eco-mode schedules that are assigned to the Shared Resource, are displayed.

- [Eco-mode Schedule] radio button  
Specify the setting method (ON/OFF only, Schedule only, or Both) for range specification (Default: Unselected).
  - ON/OFF only  
Only whether the Eco-mode is on or off is set for the target Thin Provisioning Pool.
  - Schedule only  
Only the Eco-mode schedule is set for the target Thin Provisioning Pool.
  - Both  
Both whether the Eco-mode is on or off and the Eco-mode schedule are set for the target Thin Provisioning Pool.
- Manual setting
  - [Eco-mode Schedule (ON/OFF)] check box  
Select ON/OFF of Eco-mode schedule for the target Thin Provisioning Pool.  
If this box is checked, the Eco-mode schedule is ON. If this box is not checked, the Eco-mode schedule is OFF.
  - [Eco-mode Schedule (Schedule)] list box  
Select the Eco-mode schedule for the target Thin Provisioning Pool.

---

**Caution**



When Resource Domains are registered in the ETERNUS DX400/DX8000 series, only the Eco-mode schedules that are assigned to the same Resource Domain as the relevant TPP and the Shared Resource, are displayed in the list box.

---

- Displayed contents
  - Disk Status  
Disk status of the target Thin Provisioning Pool is displayed.
    - active
    - idle
    - in the boot process
    - in the stop process

---

**Caution**



Access to the disks under [in the boot process] or [in the stop process] is not allowed.

---

- Control Status  
[-] (hyphen) is displayed.

Refer to ["A.4.1 Thin Provisioning Pool List \(Pool List\) Screen" \(page 676\)](#) for other Thin Provisioning Pool list items.

## A.32 Create Advanced Copy Information

### A.32.1 Create Advanced Copy Information (Input New Device Information) Screen

Used to manually add new device information.

- Setting item
  - [Series] radio button  
Select the series name of the device to be added by radio button.
    - ETERNUS DX410/DX440/DX8100/DX8400/DX8700  
Select for ETERNUS DX400/DX8000 series devices.
    - ETERNUS4000/8000 MODEL400/600/800/1200/2200  
Select for ETERNUS4000 model 400/600 and ETERNUS8000 model 800/1200/2200 devices.
    - ETERNUS4000/8000 MODEL300/500/700/900/1100/2100  
Select for ETERNUS4000 model 300/500 and ETERNUS8000 model 700/900/1100/2100 devices.
    - ETERNUS6000  
Select for ETERNUS6000 devices.
    - GR740/840  
Select for GR740 and GR840 devices. (\*1)
    - ETERNUS3000  
Select for ETERNUS3000 devices.
  - \*1: Advanced Copy path setting using a GR740 or GR840 as the remote device may only be specified when the local device is an ETERNUS6000.
  - Unique Number  
Enter the 4-digit hexadecimal serial number of the Controller Enclosure.  
Only the numbers 0 – 9 and uppercase characters A – F may be used.
  - Vendor Specified  
For ETERNUS3000 devices only, enter the third and fourth digits of the WWN as a 2-digit hexadecimal.  
Only the numbers 0 – 9 and uppercase characters A – F may be used
  - Box ID  
Enter a 1- to 40-character Box ID for the device.  
Only uppercase alphanumeric characters, spaces, and the number sign (#) may be used.
  - iSCSI Name  
Enter a 1- to 223-character iSCSI name for the device.  
Only alphanumeric characters, hyphens (-), colons (:), and periods (.) may be used.

## A.33 Set IP Address for USER Port

### A.33.1 Set IP Address for USER Port (Initial) Screen

IP Address and the Subnet Mask, etc. currently registered in the device are displayed on this screen. When changing network environment settings, set each parameter in the text boxes.

- Setting item
  - Network Settings
    - IP Address  
Set the IP Address of the device in numerals 0 – 255 (required).  
The initial status is blank.
    - Subnet Mask  
Set the Subnet Mask of the device in numerals 0 – 255 (required).  
The initial status is blank.
    - Gateway  
Set the gateway IP Address of the device in numerals 0 – 255.  
When you access the device from outside the subnet, this setting is required.  
The initial status is blank.
    - Allow same subnet access  
Selects [Yes] or [No] for allow same subnet access with the radio button.  
The default setting is "No".
  - DNS Settings
    - DNS Settings  
Set the IP Addresses for the Primary DNS and Secondary DNS in the device in numerals 0 – 255.  
The initial status is blank.
  - IP Access Settings
    - IP Access Settings  
Set the subnet or network address (or IP Address) of the device, that is used for communication from out of the subnet to the device in numerals 0 – 255.  
Up to 15 IP Access Settings can be set. The initial status is blank.
      - Network Address
      - Subnet Mask

- Service Settings
    - Service Settings

Specify the following service information for the device.  
Enable the service information in the [Service Settings] for the ETERNUS DX400/DX8000 series to receive and execute the request (\*1).

      - HTTP Port No.

Enter the HTTP port number in numerals 1 – 65535 (However, "23", "443", "1999", and "1372" have already been used for the ETERNUS DX400/DX8000 series, and cannot be specified for this field).  
The default value is 80.
      - HTTP

Select HTTP port "Enable" or "Disable" with the radio button.  
The default setting is "Enable".
      - HTTPS

Select HTTPS port "Enable" or "Disable" with the radio button.  
The default setting is "Enable".
      - ping

Select ping "Enable" or "Disable" with the radio button.  
The default setting is "Enable".
      - Maintenance Port

Select Maintenance Port (\*2) "Enable" or "Disable" with the radio button.  
The default setting is "Enable".
      - Maintenance Secure Port

Select Maintenance Secure Port (\*3) "Enable" or "Disable" with the radio button.  
The default setting is "Disable".
- \*1: When a user connects ETERNUSmgr or a PC to the ETERNUS DX400/DX8000 series for checking the status of the device and performing maintenance, [Enable] the HTTP port or the HTTPS port according to the specification method of the IP Address (http or https). When the ETERNUS DX400/DX8000 series receives ping, [Enable] the ping port. When a user connects Storage Foundation Software ETERNUS SF (such as ETERNUS SF Storage Cruiser) to the ETERNUS DX400/DX8000 series for checking the status of the device and performing maintenance, [Enable] the Maintenance Port or Maintenance Secure Port.  
When using the [Set Remote Support] function or exporting an operation log (Syslog function) to send error information or operation events to the REMCS Center or the Syslog server, or when sending ping from the device, the port for Service Settings is not used.
- \*2: The Maintenance Port is used by Storage Foundation Software ETERNUS SF, such as ETERNUS SF Storage Cruiser, to interface with ETERNUS DX400/DX8000 series. If Storage Foundation Software ETERNUS SF is not used, select [Disable] for the "Maintenance Port".
- \*3: The Maintenance Secure Port is used by Storage Foundation Software ETERNUS SF, such as ETERNUS SF Storage Cruiser, to interface with ETERNUS DX400/DX8000 series. This port sends and receives the encrypted communication data. If Storage Foundation Software ETERNUS SF is not used, select [Disable] for the "Maintenance Secure Port".

## A.34 Set IP Address for REMCS Port

### A.34.1 Set IP Address for REMCS Port (Initial) Screen

On this screen, the IP Address, the Subnet Mask, etc. of the REMCS port currently registered in the device are displayed. To change the network environmental settings of the REMCS port, set each parameter in the text box. The network environmental settings of the REMCS port can also be deleted on this screen.

- Setting item
  - Network Settings
    - IP Address  
Set the IP Address of the REMCS port in numerals 0 – 255.  
The initial status is blank.
    - Subnet Mask  
Set the Subnet Mask of the REMCS port in numerals 0 – 255.  
The initial status is blank.
    - Gateway  
Set the gateway IP Address of the REMCS port in numerals 0 – 255.  
When you access the device from outside the subnet, this setting is required.  
The initial status is blank.
    - Allow same subnet access  
Selects "Yes" or "No" for access to the REMCS port from the same subnet with the radio button.  
The default setting is "No".
  - DNS Settings
    - DNS Settings  
Set the IP Addresses for the Primary DNS and Secondary DNS in the REMCS port in numerals 0 – 255.  
The initial status is blank.
  - IP Access Settings
    - IP Access Settings  
Set the subnet or network address (or IP Address) of the device, that is used for communication from out of the subnet to the REMCS port in numerals 0 – 255.  
Up to 15 IP Access Settings can be set. The initial status is blank.
      - Network Address
      - Subnet Mask

- Service Settings
    - Service Settings

Specify the following service information for the REMCS port.  
Enable the service information in the [Service Settings] for ETERNUS DX400/DX8000 series to receive and execute the request (\*1).

      - HTTP Port No.

Enter the HTTP port number in numerals 1 – 65535 (However, "23", "443", "1999", and "1372" have already been used for the ETERNUS DX400/DX8000 series, and cannot be specified for this field).  
The default value is 80.
      - HTTP

Select HTTP port "Enable" or "Disable" with the radio button.  
The default setting is "Enable".
      - HTTPS

Select HTTPS port "Enable" or "Disable" with the radio button.  
The default setting is "Enable".
      - ping

Select ping "Enable" or "Disable" with the radio button.  
The default setting is "Enable".
      - Maintenance Port

Select Maintenance Port (\*2) "Enable" or "Disable" with the radio button.  
The default setting is "Enable".
      - Maintenance Secure Port

Select Maintenance Secure Port (\*3) "Enable" or "Disable" with the radio button.  
The default setting is "Disable".
- \*1: When user connects ETERNUSmgr or PC and the ETERNUS DX400/DX8000 series to check the device status and perform maintenance, [Enable] the HTTP port or HTTPS port according to the specification method of the IP Address (http or https). When the ETERNUS DX400/DX8000 series receives ping, [Enable] the ping port. When user connects Storage Foundation Software ETERNUS SF (such as ETERNUS SF Storage Cruiser) to check the device status and perform maintenance, [Enable] the Maintenance Port or Maintenance Secure Port.  
When using the [Set Remote Support] function or exporting operation log (Syslog function) to send error information or operation event to the REMCS Center or Syslog server, or sending ping from the device, the port for the Service Settings is not used.
- \*2: The Maintenance Port is used by Storage Foundation Software ETERNUS SF, such as ETERNUS SF Storage Cruiser, to interface with ETERNUS DX400/DX8000 series. If Storage Foundation Software ETERNUS SF is not used, select [Disable] for the "Maintenance Port".
- \*3: The Maintenance Secure Port is used by Storage Foundation Software ETERNUS SF, such as ETERNUS SF Storage Cruiser, to interface with ETERNUS DX400/DX8000 series. This port sends and receives the encrypted communication data. If Storage Foundation Software ETERNUS SF is not used, select [Disable] for the "Maintenance Secure Port".

## A.35 Set Syslog

### A.35.1 Set Syslog (Initial) Screen

On this screen, the Syslog information registered in the ETERNUS DX400/DX8000 series is displayed. When changing settings, specify the appropriate values on this screen.

#### ■ Syslog Function

##### ● Setting item

##### • Syslog Function

##### - Syslog Function

Select whether to enable or disable the Syslog function.

The default setting is "Disable".

- Enable: Syslogs specified in the "Output Log Type" are sent to the Syslog server.
- Disable: Syslogs are not sent.

#### ■ Common Settings

##### ● Setting item

##### • Use LAN Port

Select the device LAN port used for transferring Syslogs from the list box.

The default setting is "USER".

- USER: USER port
- REMCS: REMCS port

##### • Output Log Type

When "Enable" is selected in the "Syslog Function" field, select the type of Syslogs to be sent to the Syslog server using the checkbox.

The initial status is "Not selected".

##### - Informational:

The following events are sent to the Syslog server:

- Configuration settings operation and maintenance information operation such as deleting logs using the ETERNUSmgr or ETERNUS SF Storage Cruiser
- Logging on and logging off from the ETERNUSmgr

##### - Warning:

Warning events in the notifications of the REMCS and SNMP are sent to the Syslog server.

##### - Error:

Error events in the notifications of the REMCS and SNMP are sent to the Syslog server.



#### Caution

The Syslog of the event that indicates the changing of the Syslog setting is sent to the Syslog server regardless of whether the "Syslog Function" has been enabled or disabled, or the "Output Log Type" checkbox is selected.

■ Syslog Server 1 (Required)/Syslog Server 2 (can be omitted)

● Setting item

• IP Address

Set the IP Address of the Syslog server in numerals 0 – 255.  
The initial status is blank.

---

**Caution** 

Specifying the Syslog server by domain name is not allowed.

---

• Port No.

Set the port number that the Syslog server uses in numerals 1 – 65535.  
The default setting is "514".

## A.36 Set Remote Support

### A.36.1 Set Remote Support (Initial) Screen

Input the customer information and the device information to register at the REMCS center on this screen.

#### ■ Import Remote Support Setting Information File

##### ● Setting item

- Customer Information File  
Import the [Customer Information File] created by using REMCS ESAT into the device. Click [Browse] button and select [Customer Information File].
- Communication Environment Information File  
Import the [Communication Environment Information File] created by using REMCS ESAT into the device. Click [Browse] button and select [Communication Environment Information File].

#### ■ Customer information

- [Delete personal information] radio button  
Select whether personal information is to [be deleted] or [NOT be deleted] (Default).  
Select [be deleted] radio button not to save the personal information in the device. The personal information will be deleted after sending to REMCS center.

The following information will be deleted:

- Administrator
- E-Mail
- Phone Number
- FAX Number
- CE E-Mail

##### • Detailed Settings

- Company (Required)  
Input the company name of the customer using the device (corporate name).  
Up to 60 alphanumeric characters and symbols can be entered.
- Department/Division  
Input the department/division of the customer using the device.  
Up to 40 alphanumeric characters and symbols can be entered.
- Address (Required)  
Input the address of the customer using the device.  
Up to 60 alphanumeric characters and symbols can be entered.
- Building  
Input the building name of the company using the device.  
Up to 40 alphanumeric characters and symbols can be entered.

- Administrator (Required)  
Input the administrator name for the device.  
Up to 40 alphanumeric characters and symbols can be entered.
- E-Mail (Required)  
Input the administrator E-mail address.  
Up to 60 alphanumeric characters and symbols can be entered.
- Zip/Postal Code  
Input the ZIP code of the company using the device.  
Up to 10 alphanumeric characters and symbols can be entered.
- Phone Number (Required)  
Input the telephone number of the customer using the device.  
Up to 20 numerals and symbols can be entered.
- FAX Number  
Input the FAX number of the company using the device.  
Up to 20 numerals and symbols can be entered.
- Device Unique Name  
Input the unique name given to the device.  
Up to 32 alphanumeric characters and symbols can be entered.
- Country (ISO3166 A2) (Required)  
Input the name of the country the companies in. The country name must comply with the ISO-3166 A2 code. Two capital letters (Fixed) or "99" can be entered.
- Installation Site Address
  - Installation Site Address  
Input the address of the ETERNUS DX400/DX8000 series installation site.  
Up to 60 alphanumeric characters and symbols can be entered.
  - Building  
Input the name of the ETERNUS DX400/DX8000 series installation building.  
Up to 40 alphanumeric characters and symbols can be entered.
- CE Setting Items
  - Installation Date  
Input year-month when the device was installed.  
Numerals between 2000 – 3000 for Year, and 1 – 12 for Month can be entered.
  - CE E-Mail  
Input the E-Mail address of the CE setting up the device.  
Up to 60 alphanumeric characters and symbols can be entered.
  - Customer Code  
Input the serial number for customer management.  
Up to 8 alphanumeric characters and symbols can be entered.

## ■ Communication Environment information

- Connection
  - Connection  
Select the connection type between the device and the REMCS center from the list box.
    - Internet Connection (default setting)
    - Internet Connection (E-Mail only)
    - P-P Connection
    - P-P Connection (E-Mail only)
    - P-P Connection (VPN)
    - P-P Connection (VPN E-Mail only)
  - Use LAN Port  
Select the device LAN port to use at REMCS function.
    - USER (default setting)
    - REMCS
- Service
  - Scheduled Connection Time (Required)  
Input the time of a periodic connection with the REMCS.  
Numerals between 0 – 23 for Hour, and 0 – 59 for Minute can be entered.
  - Scheduled Connection Period  
Input the cycle of the periodic connection.
    - Every day (default setting)
    - Every Day Except Sunday
    - Every Day Except Saturday and Sunday
    - Once a Week
  - Specify the Day of the Week  
Select a day of the week to execute periodic connection. This is available only when a cycle of a periodic connection is made; "Once a Week".  
The default setting is "Sunday".
- Proxy Server
  - Proxy Server  
Input the IP address or the domain name of the PROXY server used by the REMCS operation.  
Up to 63 alphanumeric characters and symbols can be entered.
  - Port No.  
Input the port number that the PROXY server uses.  
Numerals between 1 – 65535 can be entered.
  - User Name  
Input the user name when the PROXY server is used.  
Up to 31 alphanumeric characters and symbols can be entered.
  - Password  
Input the password when the PROXY server is used.  
Up to 31 alphanumeric characters and symbols can be entered.

- Device Mail Address
  - SMTP Server (Required)  
Input the IP address or the domain name of the SMTP server used by the REMCS operation.  
Up to 63 alphanumeric characters and symbols can be entered.
  - Port No. (Required)  
Input the port number that the SMTP server uses.  
Numerals between 1-65535 can be entered. The default setting is "25".
  - Sender E-Mail (Required)  
Input the source E-Mail address that the device uses for REMCS operation.  
Up to 63 alphanumeric characters and symbols can be entered.
- SMTP Auth Information
  - Auth Type  
Select the type of the SMTP Authentication.
    - Without SMTP-AUTH (default setting)
    - POP Before SMTP-AUTH
    - SMTP-AUTH
  - SMTP-AUTH Type (When using SMTP-AUTH only)  
Select the method of SMTP Authentication.
    - AUTO (default setting)
    - CRAM-MD5
    - PLAIN
    - LOGIN
  - POP Server (When using POP Before SMTP-AUTH only)  
Input the domain name or IP address of POP server to connect at the time of SMTP Authentication.  
Up to 63 alphanumeric characters and symbols can be entered.
  - Port No.  
Input the port number to use when you communicate with POP server at SMTP Authentication. Normally, "110" is used.  
Numerals between 1 – 65535 can be entered.
  - User Name  
Input the user ID when accessing POP server.  
Up to 31 alphanumeric characters and symbols can be entered.

---

**Caution**



This item is available only when selecting "POP Before SMTP-AUTH" or "SMTP-AUTH" at Auth Type.

---

- Password  
Input the password when accessing POP server.  
Up to 31 alphanumeric characters and symbols can be entered.

---

**Caution**



This item is available only when selecting "POP Before SMTP-AUTH" or "SMTP-AUTH" at Auth Type.

---

- REMCS Center
  - REMCS Center (Required)  
Select the REMCS center to be connected to the device from the list box.
    - Blank (default setting)
    - Fujitsu America
    - Australia
    - Brazil
    - Hong-Kong
    - China
    - Indonesia
    - Korea
    - Malaysia
    - Philippine
    - Singapore
    - Taiwan
    - Thailand
    - Vietnam
    - Individual support in Hawaii
    - OSC

**Caution**



If "Inputting directly" is displayed, the center cannot be changed to another location.

■ Detailed Settings Information

- E-Mail sent in split mode Setting  
Select whether over-size E-Mails are to be split when the ETERNUS DX400/DX8000 series sends information to the REMCS center.  
E-Mails that exceed the specified size (from the default 64KB, up to 6400KB) are to be split up, then sent. If the customer's mail server does not permit the sending of split E-Mails, select [E-Mail sent in NON split mode].
  - E-Mail sent in split mode (default setting)  
If the E-Mail exceeds the specified capacity (from the default 64KB, up to 6400KB), split the E-Mail and send.
  - E-Mail sent in NON split mode  
Send the E-Mail without splitting it.
- Set the device name for HELO/EHLO command  
When sending "HELO" or "EHLO" command from the ETERNUS DX400/DX8000 series to the mail server, use the radio button to select "None Specified" (default setting) or "Specifying" the device name as the domain.

**Caution**



Mail protocol requires that a domain name be specified for the "HELO" or "EHLO" command. If [None Specified] is selected, the ETERNUS DX400/DX8000 series sends the part of the Sender E-Mail address after the "@" mark. If the customer's mail server may not be used for the domain, select [Specifying] and input an appropriate domain.

- None Specified  
Use the part of the Sender E-Mail address after the "@" mark as the device name for the "HELO" or "EHLO" command.

**Caution**



Inputting the domain in the text box is not required. If the domain is input, the letter type and number of characters are checked.

- Specifying  
Input up to 63 alphanumeric characters and symbols in the text box for use as a domain for the "HELO" or "EHLO" command.

**Caution**



Make sure to input the domain to be sent in the text box.

■ Timer Information

**Caution**



- This setting is not required to be changed in normal operation.
- When changing the setting, click the [Detail] button.

- SMTP Response Timeout  
Input time-out value when connecting SMTP.  
Numerals between 1 – 3600 (sec) can be entered. The default setting is "60 (sec)".
- SMTP Retry Count  
Input retry count of SMTP.  
Numerals between 1 – 60 can be entered. The default setting is "5 (times)".
- SMTP Retry Interval  
Input retry interval of SMTP.  
Numerals between 1 – 3600 (sec) can be entered. The default setting is "30 (sec)".
- HTTP Response Timeout  
Input time-out value when connecting HTTP.  
Numerals between 1 – 3600 (sec) can be entered. The default setting is "30 (sec)".
- HTTP Retry Count  
Input retry count of HTTP.  
Numerals between 1 – 60 can be entered. The default setting is "5 (times)".
- HTTP Retry Interval  
Input retry interval of HTTP.  
Numerals between 1 – 3600 (sec) can be entered. The default setting is "5 (sec)".
- Queuing Time for Sending Mail (When using POP Before SMTP-AUTH only)  
Input waiting time when sending e-mail.  
Numerals between 1 – 3600 (millisecond) can be entered. The default setting is "1000 (millisecond)".

## A.37 Set User Account

### A.37.1 Set User Account (Registration) Screen

Registers a user account.

- Setting item

- User Name

Enter the user name to register using alphanumeric characters (from 4 to 16 characters and symbols ("!", "-", "\_", ".")).

The number of users which can be registered is 32 users or less (\*1).

\*1: Note that only one user account with update authority (roles other than [Read Only]) can be logged on ETERNUSmgr at once.



**Caution**

User name is case-sensitive.

- Password

Enter the password to register using alphanumeric characters (from 4 to 32 characters and symbols ("!", "-", "\_", ".")).

- Re-enter password

Enter the password to register using alphanumeric characters (from 4 to 32 characters and symbols ("!", "-", "\_", ".")).



**Caution**

Password is case-sensitive.

- Role

Select the checkbox of roles to be added to the registering user account (multiple selections can be made).

Refer to ["Default roles and supported categories" \(page 813\)](#) for details about default roles and supported functions. Refer to [Set Role] function for functions that can be used with user specified roles.

When logged on using a Total Administrator account, all the roles (default roles and roles that are registered in the ETERNUS DX400/DX8000 series) are displayed in "Role - Resource Domain (\*1)" format.

When logged on using a Resource Domain Administrator account, only the name of roles that are set to the relevant Resource Domain are displayed.

When Resource Domains are not registered, the names of all the roles (default roles and roles that are registered in the ETERNUS DX400/DX8000 series) are displayed.

\*1: Resource Domains are displayed in the "Resource Domain No. (:Resource Domain name)" format. If a Resource Domain name has been registered, the Resource Domain name is also displayed. When the relevant role is assigned to the Shared Resource, "All Resources" is displayed.

**Caution** 

- Only one role can be used when logged on. If multiple roles are given to a user account, select one role to be used when logged on.
- When logged on using a Total Administrator account, only the roles with the same Resource Domain can be given to a single user account.

■ Create User Account (Total Administrator/Resource Domain Administrator)

Resource Domain	User account used for logging on	Role (Resource Domain)	Target Resource	Created user account
No Resource Domains are registered	Total Administrator	Default role	All Resources	Total Administrator
		Specific role		
Resource Domains are registered	Total Administrator	Default role	All Resource Domains	Total Administrator
		Specific role (All Resources)		
		Specific role (Specific Resource Domain)	Specific Resource Domain	Resource Domain Administrator (Manages the Resource Domain that is specified using roles)
	Resource Domain Administrator	Specific role (Cannot be specified)	Specific Resource Domain	Resource Domain Administrator (Manages the same Resource Domain that the current Resource Domain Administrator account manages)

## A.38 Set Role

### A.38.1 Set Role (Register Role/Change Role) Screen

A list of categories that can be used with system administrator privileges is displayed. Select the Resource Domains and categories to be allowed for the role. Or change Resource Domains or categories selected for the role.

#### ■ Role List

##### ● Setting item

###### • Role Name

Enter the role name to register using alphanumeric characters (within 16 characters and symbols ("!", "-", "\_", ".")).

###### **Caution**



An existing Role Name cannot be specified.

###### • Resource Domain

Select the number of the Resource Domain to be operated by the role.

"All Resources" for using all the Resource Domains, and the Resource Domains (0x00 – 0x07) registered in the ETERNUS DX400/DX8000 series are displayed as selection items. If a Resource Domain name is specified, the Resource Domain name is also displayed. The default setting is "All Resources".

###### **Caution**



When Resource Domains are not registered, or when logged on using a Resource Domain Administrator account, the "Resource Domain" item is not displayed.

###### • Checkbox

Select the categories to be allowed for the role (multiple selections can be made).

The following table shows the functions that can be used when selecting each category.

###### **Caution**



When logged on using a Total Administrator account, and only "All Resources" is selected as the Resource Domain, the [Resource Domain Settings] category can be selected.

■ List of categories and supported functions for system administrator privilege

Category	Supported functions list
Device Status	Device Status RAID Group List Volume List Advanced Copy Status Thin Provisioning Pool List Resource Domain List (*1)
RAID Group Settings - Add	Create RAID Group Create Logical Volume Create Hot Spare Set Snap Data Pool Create/Extend Thin Provisioning Pool
RAID Group Settings - Change	LUN Concatenation Set Snap Data Pool Initialize Snap Data Volume RAID Migration Progress of RAID Migration Logical Device Expansion Change Controlling CM of RAID Group Convert Encryption Volume Rename RAID Group Rename Logical Volume Set Thin Provisioning Pool Parameters Set Thin Provisioning Volume Parameters Thin Provisioning Volume Expansion Register Thin Provisioning License Balance Thin Provisioning Volume Progress of Balance Thin Provisioning Volume
RAID Group Settings - Delete	Delete RAID Group Delete Logical Volume Delete Hot Spare Set Snap Data Pool Delete Thin Provisioning Pool
Logical Volume Format	Format Logical Volume Format Thin Provisioning Pool
Host Settings - Open	Set CA Parameters Set Host WorldWideName(s) Set iSCSI Host Set Affinity Group Allocate Host-Affinity Group Set LUN Mapping Set CA Reset Group Set Host Response Change RA Mode Release Reservation
Host Settings - Mainframe	Set CA Parameters Set LCU Set IOA Mapping
Storage Migration - Open	Open Storage Migration Progress of Open Storage Migration
Storage Migration - Mainframe	Mainframe Storage Migration Progress of Mainframe Storage Migration

Category	Supported functions list
Device Settings	Set Configuration Set Sub System Parameters Set Encryption Mode Set Date and Time
Advanced Copy - EC/OPC	Set EC/OPC Priority Stop EC/OPC Session Set Advanced Copy Table Size Register Advanced Copy License
Advanced Copy - REC	Set Box ID Set EC/OPC Priority Set REC Priority Stop REC Session Set Advanced Copy Table Size Register Advanced Copy License Set REC Buffer Set Advanced Copy Event Notification Export Advanced Copy Information Create Advanced Copy Information Set Advanced Copy Path Check Advanced Copy Path Create REC Disk Buffer Delete REC Disk Buffer Format REC Disk Buffer
Network and SNMP Settings	Set SNMP Agent Environment Download Extended MIB Definition File SNMP Trap Test Set IP Address for USER Port Set IP Address for REMCS Port
Eco-mode	Set Common Eco-mode Set Eco-mode Schedule Set RAID Group-Eco-mode Set Thin Provisioning Pool-Eco-mode
Account Settings	Set User Account Set Role Set RADIUS Authentication
Download	Export Configuration Export Log Export Panic Dump Set Syslog
Remote Support Settings	Display Support Settings Communication Log Set Remote Support Update Customer Information Change Communication Environment Information Sending Log Pause/Restart Remote Support
Resource Domain Settings	Set Resource Domain Assign Numerical Resource (*1) Assign Resources (*1)

\*1: When Resource Domains are not registered in the ETERNUS DX400/DX8000 series, even if the [Device Status] and [Resource Domain Settings] categories are specified for a logged on user account, the relevant menus are not displayed.

**Caution** 

When logged on using a Resource Domain Administrator account, the [Storage Migration - Open], [Remote Support Settings], and [Resource Domain Settings] categories are not displayed.

■ Default roles and supported categories

Category	Default role					
	Administrator	Read Only	diskadm	account	remcs	download
Device Status	Supported	Supported	Supported	–	Supported	Supported
RAID Group Settings - Add	Supported	–	Supported	–	–	–
RAID Group Settings - Change	Supported	–	Supported	–	–	–
RAID Group Settings - Delete	Supported	–	Supported	–	–	–
Logical Volume Format	Supported	–	Supported	–	–	–
Host Settings - Open	Supported	–	Supported	–	–	–
Host Settings - Mainframe	Supported	–	Supported	–	–	–
Storage Migration - Open	Supported	–	Supported	–	–	–
Storage Migration - Mainframe	Supported	–	Supported	–	–	–
Device Settings	Supported	–	–	–	–	–
Advanced Copy - EC/OPC	Supported	–	Supported	–	–	–
Advanced Copy - REC	Supported	–	Supported	–	–	–
Network and SNMP Settings	Supported	–	–	–	–	–
Eco-mode	Supported	–	–	–	–	–
Account Settings	Supported	–	–	Supported	–	–
Download	Supported	–	–	–	–	Supported
Remote Support Settings	Supported	–	–	–	Supported	–
Resource Domain Settings	Supported	–	–	–	–	–

Supported: Supported category

–: Categories that are not supported

## A.39 Set RADIUS Authentication

### A.39.1 Set RADIUS Authentication (Initial) Screen

On this screen, the RADIUS Authentication information registered in the ETERNUS DX400/DX8000 series is displayed. When changing settings, specify the appropriate values on this screen.

#### ■ RADIUS Authentication Function

##### ● Setting item

##### • RADIUS Authentication Function

Select whether to enable or disable the RADIUS Authentication function. The default setting is "Disable".

- Enable (Use RADIUS Authentication):  
RADIUS server for user account authentication is used.
- Disable (Use Internal Authentication):  
Internal authentication for user account authentication is used. RADIUS server for user account authentication is not used.

#### **Caution**

When "Enable" is selected in the "RADIUS Authentication Function" field, select the desired operation that will occur if RADIUS Authentication fails in the "Authentication Error Recovery" of "Common Settings".

#### ■ Common Settings

##### ● Setting item

##### • Use LAN Port

Select the device LAN port used for RADIUS Authentication from the list box. The default setting is "USER".

- USER: USER port
- REMCS: REMCS port

##### • Authentication Error Recovery

When "Enable" is selected in the "RADIUS Authentication Function" field, select the desired operation that will occur if RADIUS Authentication fails from the list box. The default setting is "Use Internal Authentication (Any Error Case)".

- Use Internal Authentication (Any Error Case):  
When communication with the RADIUS server fails or communication with the RADIUS server succeeds but authentication fails, perform internal authentication.
- Use Internal Authentication (Network Error Case):  
When communication with the RADIUS server fails, perform internal authentication.

- Do not use Internal Authentication:  
Even when communication with the RADIUS server fails, or communication with the RADIUS server succeeds but authentication fails, internal authentication is not performed.

**Caution** 

If RADIUS Authentication fails when selecting "Do not use Internal Authentication" for Authentication Error Recovery, logging on to ETERNUSmgr will not be available.

■ Primary Server (required) / Secondary Server (can be omitted)

● Setting item

• IP Address

Set the IP Address of the RADIUS server with up to three numeric characters (0 – 255). The initial status is blank.

**Caution** 

Specifying the RADIUS server by domain name is not allowed.

• Port No.

Input the port number (1 – 65535) that the RADIUS server uses with up to five characters. The default setting is "1812".

• Authentication Type

Select the authentication method for the RADIUS Authentication from the list box.

- CHAP (Default)
- PAP

• Shared Secret

Input the same Shared Secret as the RADIUS server with up to 32 ASCII code characters (0x20 – 0x7E). The initial status is blank.

• Timeout (Second)

Select the total time for waiting for a response from the RADIUS server. ETERNUS DX400/DX8000 series retries authentication during the specified time (seconds), and if there is no response in the specific time, regard the situation as network error. The default setting is "30 second".

## Appendix B Notes on Access via https

This appendix describes how to solve the https access error with different browsers.

### ■ For Internet Explorer 6.0

Register the server certificate using the following procedure, then start the ETERNUSmgr back-end program.

#### Note

- This server certificate registration procedure only needs to be performed once, not every logon.
- However, a [Security Alert] dialog box may continue to appear even after certificate registration. In this case, click the [Yes] button ([Step 2](#)) to proceed with the logon process.

### Procedure

#### 1 Input URL in the Web browser's address bar.

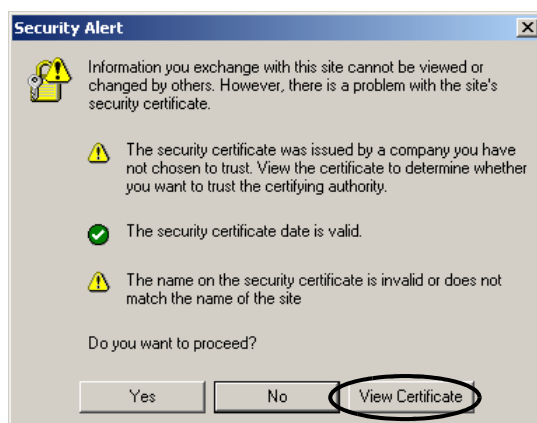
Specify "https://device\_IP\_address/".

→ A [Security Alert] dialog box appears.

#### Note

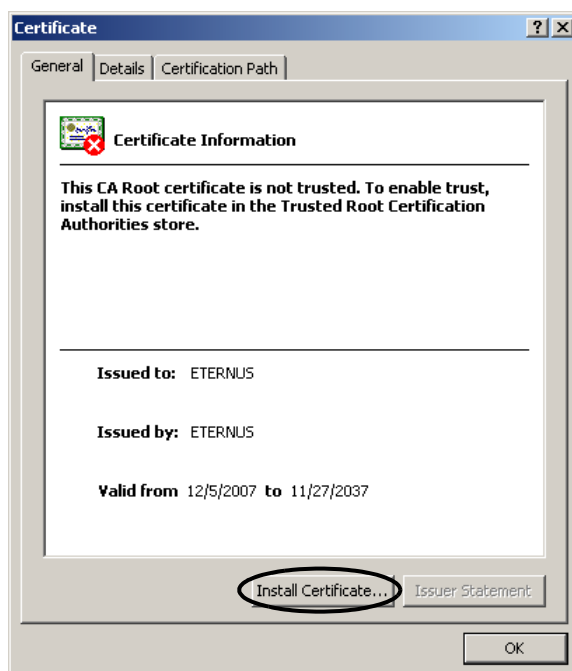
The [Security Alert] dialog box will appear until the server certificate has been registered.

#### 2 Click the [View Certificate] button in the [Security Alert] dialog box.



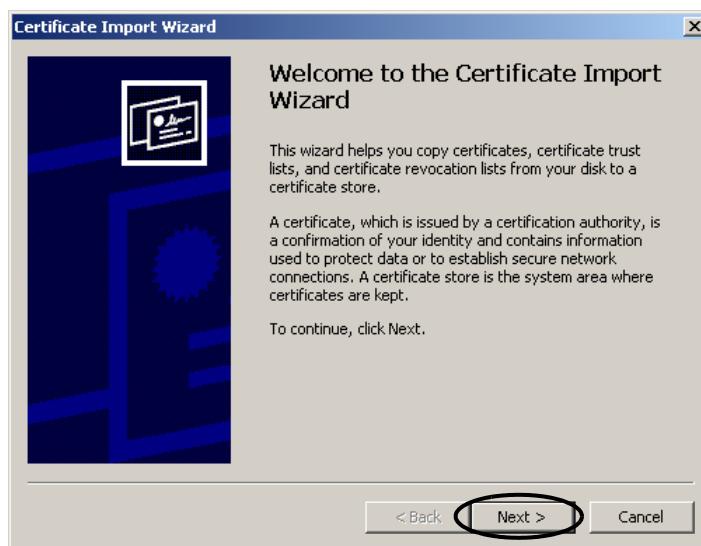
→ The [Certificate] dialog box appears.

- 3 Click the [Install Certificate...] button in the [Certificate] dialog box.



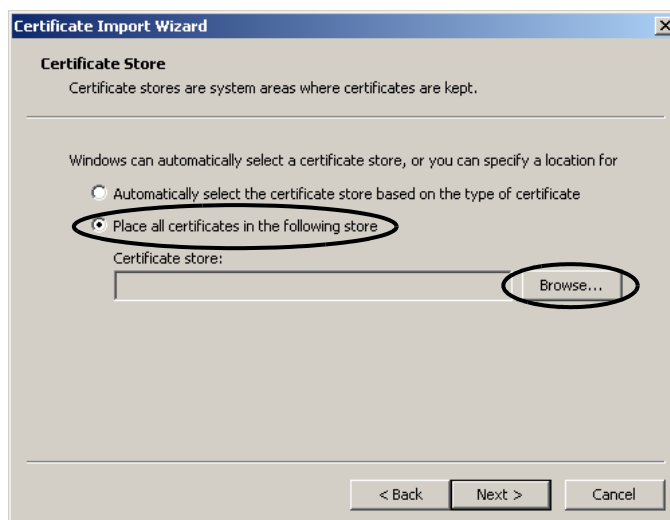
→ The [Certificate Import Wizard] starts.

- 4 Click the [Next] button on the [Welcome to the Certificate Import Wizard] screen to run the wizard.



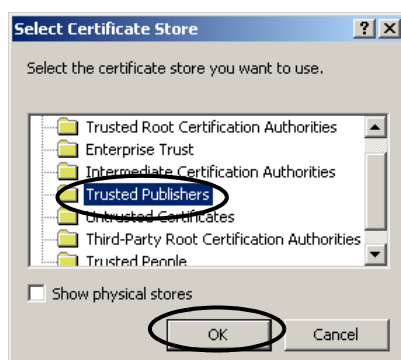
→ The [Certificate Store] screen appears.

- 5 Select the [Place all certificates in the following store] option, and click the [Browse...] button.

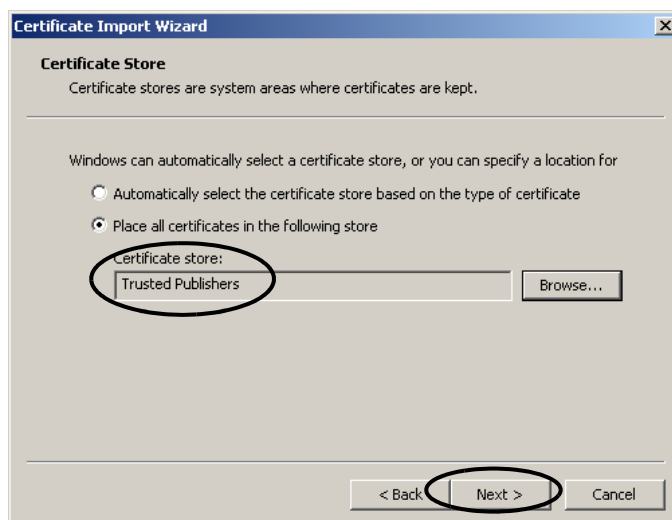


→ A [Select Certificate Store] dialog box appears.

- 6 Select the [Trusted Publishers] item, and click the [OK] button.



- 7** Confirm that the [Certificate Store] screen appears as follows, and click the [Next] button.



- 8** Click the [Finish] button to close the [Certificate Import Wizard] screen.



- 9** Click the [Yes] button in the [Security Alert] dialog box from [Step 2](#). The title screen of the ETERNUSmgr backend program appears.

End of procedure

■ For Internet Explorer 7.0

Logon to the ETERNUSmgr backend program, using the following procedure:

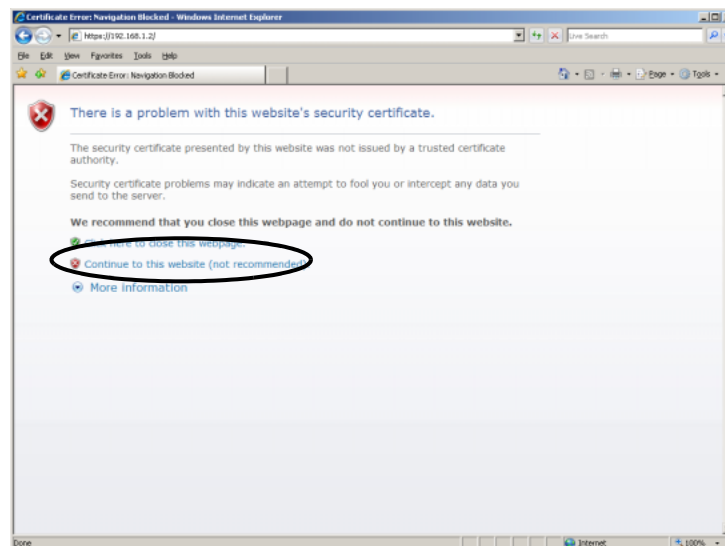


Note

The [Certificate Error] will appear at every logon. Proceed according to the following procedure.

## Procedure

- 1 Input URL in the Web browser's address bar.  
Specify "https://device\_IP\_address/".
- 2 When the [Security Alert] dialog box appears, click the [OK] button.
- 3 The [Certificate Error] screen appears. Click the [Continue to this website (not recommended)] link in the browser.



→ The title screen of the ETERNUSmgr backend program appears.

End of procedure

■ For Netscape 7

Register the server certificate using the following procedure, then logon to the ETERNUSmgr backend program.

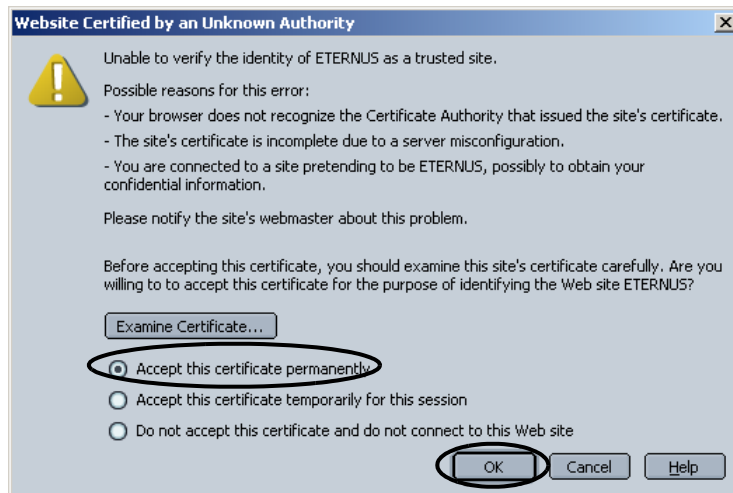


Note

- This server certificate registration procedure only needs to be performed once, not every logon.
- However, a [Security Error] or [Security Warning] message may continue to appear ([Step 2](#)) even after certificate registration. In this case, click the [OK] button to proceed with the logon process.

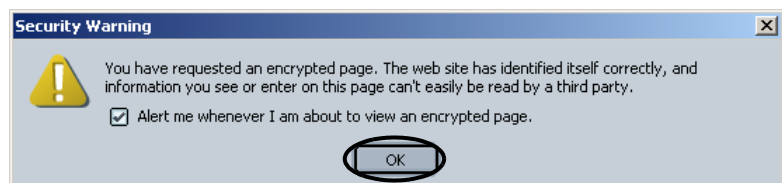
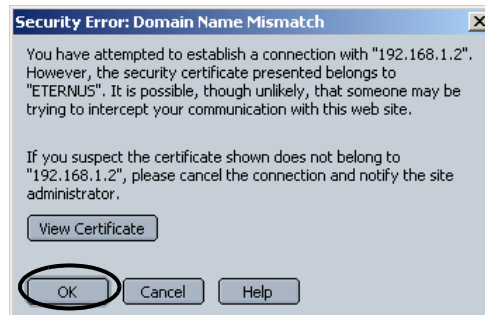
## Procedure

- 1 Input URL in the Web browser's address bar.  
Specify "https://device\_IP\_address/".  
→ A [Website Certified by Unknown Authority] dialog box appears.
- 2 Select the [Accept this certificate permanently] option, and click the [OK] button.



### Note

When performing [Step 2](#), a [Security Error] or [Security Warning] message may appear.  
Click the [OK] button to proceed with the logon process.



→ The title screen of the ETERNUSmgr backend program appears.

End of procedure

# Appendix C Syslog Message List

This chapter describes the Syslog messages that are sent by the ETERNUS DX400/DX8000 series.

## C.1 Syslog Function

### C.1.1 Outline

The Syslog function sends events that are detected by the ETERNUS DX400/DX8000 series to the external Syslog server as logs. Logs are sent using the BSD Syslog protocol that is regulated by IETF RFC 3164.

### C.1.2 Message Format

Messages that are sent by the Syslog function consist of three parts; the PRI part, the HEADER part, and the MSG part. MSG parts consist of two fields; the TAG field and the CONTENT field. The CONTENT field is output by the original format of the device. Each item is separated by a comma and a space. The maximum length of an entire message is 1024 bytes. The following table lists examples of messages and the details of formats that are output.

```
<14>1 Feb 2 23:05:082 10.21.138.343 Storage:4 Operation5, 1.06, 0 87, E8C0S20A
0000028, I 000202009, 10, 11, 12, Delete Logical Volume(s): Count=20 No=0000
0001 0002 0003 0004 0005 0006 0007 0008 0009 000A 000B 000C 000D 000E 000F
0010 0011 0012 001313
```

No.	Part name	Field name	Item	Description
1	PRI		Priority	<p>Priority of the message is output in the following format:</p> <p>&lt;Priority&gt;</p> <p>Priority value indicates the facility and severity of the message. The Priority value is calculated by "Facility value x 8 + Severity value".</p> <p>Facility value for messages is always "1".</p> <p>Severity values are determined from the following values according to each message:</p> <p>3: Error</p> <p>4: Warning</p> <p>6: Informational</p> <p>HEADER part follows the PRI part.</p>
2	HEADER		Time stamp	<p>The local time when the event is detected is output in the following format:</p> <p>Mmm dd hh:mm:ss</p> <p>Mmm: Abbreviation of each month (Jan – Dec)</p> <p>dd: Date. If the date is a single digit, a blank is output before the date number.</p> <p>hh:mm:ss: Local time. "hh" indicates the hour (00 – 23), "mm" indicates minutes (00 – 59), and "ss" indicates seconds (00 – 59).</p> <p>A blank follows the time stamp.</p>
3			Host name	<p>IP Address of the sender port (USER or REMCS) of the ETERNUS DX400/DX8000 series is output in the following format:</p> <p>xxx.xxx.xxx.xxx</p> <p>The IPv4 address is output using the IETF STD13, RFC 1035 specification.</p> <p>A blank follows the host name.</p>

No.	Part name	Field name	Item	Description
4	MSG	TAG	Program process	Name of the program or process that generates the message is output. "Storage" is output for all the messages, and a colon [:] and a blank, which indicate the end of the TAG field, follow.
5			Message type	One of the following message types is output according to the message: "Event", "Operation"
6		CONTENT	Format version	Format version of the message is output. The format version is "1.0" regardless of the message type.
7			CM No. and message ID	CM number of the Controller Module that outputs the message and the message ID are output. The CM number and the message ID are separated by a blank. Value between 0 and 7 is output according to the message for the CM No.. Message ID is a sequential serial number between 0 and 65535 for each Controller Module. The value is reset to "0" when the Controller Module is activated or when the value exceeds 65535.
8			Device name and Device number	The device name and the device number that are separated by a blank are output.
9			Event type code	The Message event type and the event code that are separated by a blank are output. One of the following letters is output as an event type: "P", "J", "M", "I" Event code is a 8-digit hexadecimal number according to the message. Refer to <a href="#">"C.2 Syslog Message List" (page 825)</a> for details.
10			Reserved	Not used in this version, and not output.
11			Reserved	Not used in this version, and not output.
12			Reserved	Not used in this version, and not output.
13			Message	Message that indicates the event is output in text format. Refer to <a href="#">"C.2 Syslog Message List" (page 825)</a> for details.

## C.2 Syslog Message List

### C.2.1 Common Terms

The following table shows components and terms that are used in [C.2.2](#) to [C.2.4](#).

Abbreviation	Meaning	Description
CM	Controller Module	Units that control all the operations in the device
CA	Channel Adapter	Host Interface Adapters between the device and server
CE	Controller Enclosure	Cabinets for installing main control units of the device such as CMs and CAs
DE	Drive Enclosure	Cabinets for installing drives.
DI	Drive Interface	Back-end interface modules in CMs.
SMC	System Management Controller	Device monitoring modules in CMs. (This item is displayed when using ETERNUS DX410/ DX440 or ETERNUS DX8100.)
CM MMC	CM Module Management Controller	Device monitoring modules in CMs. (This item is displayed when using ETERNUS DX8400/ DX8700.)
CA SFP	CA Small Form Factor Pluggable	SFP modules that are installed in CAs.
CA SFP+	CA Small Form Factor Pluggable+	SFP+ modules that are installed in CAs.
FRT	Front-end Router	Units in CEs that provide communication paths between CMs.
BRT	Back-end Router	Units in CEs that provide communication paths between CMs and DEs.
BRT SFP	BRT Small Form Factor Pluggable	SFP modules that are installed in BRTs.
SVC	Service Controller	Units in CEs that control and monitor the device.
CPSU	CE Power Supply Unit	Power supply units for units in CEs.
BBU	Battery Backup Unit	Battery backup units that are installed in CEs.
BCU	Battery Control Unit	Units in BBUs that control emergency power supply.
BTU	Battery Unit	Battery cells in BBUs.
PBC	Port Bypass Circuit	Units in DEs that provide communication paths between DEs and drives.
PBC SFP	PBC Small Form Factor Pluggable	SFP modules that are installed in PBCs.
DPSU	DE Power Supply Unit	Power supply units for units in DEs.
DEI cable	DE Interface Cable	Cables that connect SVCs and PBCs.
DMA	Direct Memory Access	Methods for data transfer.
SCCI	System Component Control Interface	Control interface for the system.

Abbreviation	Meaning
HS	Hot Spare disks
TPV	Thin Provisioning Volumes
TPP	Thin Provisioning Pool
DVCF	Double Volume Control Facility
RFCF	Remote File Copy Facility
SMART	Self-Monitoring Analysis and Reporting Technology

## C.2.2 Error Messages

This section describes the messages that are sent when the severity is Error.

### ■ Meaning of symbols

The following symbols are used in the Error Message List. These symbols are described in italics.

Symbol	Meaning
#	System 0 or System 1
\$	Sensor number (0 – 1)
&	Slot number (0 – 1)
BB	BRT Module ID (B0 – B7)
CC	CA Module ID (40 – 7F)
cc	Chip number (0 – 1)
ccccccc	Usage (Data Disk, Spare, System Disk)
EE	SVC Module ID (E0 – E1)
FF	FRT Module ID (F0 – F1)
GG	DE-ID (hexadecimal)
LL	FRT/BRT Module ID
MM	CM Module ID (10 – 11)
mm	Port number (00 – 07)
n	Port number (0 – 3)
NN	CM Module ID (10 – 17)
nn	Port number (00 – 01)
PP..PP	Product ID of Disk
RRR	RAID Group number (hexadecimal)
ss	Slot number (hexadecimal)
SS	Usage (code: hexadecimal)
ww	CA type
x	HW type (device type)
XX	ID of CM Module in which CA is installed (10 – 17)
xx	HW type (device type)

Symbol	Meaning
YYYY	Component name of CA
z	Capacity (2: 1GB, 4: 2GB, 8: 4GB)
zzz	Disk capacity
zzzz	Capacity (MB)

## ■ Error Message List

The following messages are sent when components fail or degrade.

Event type code	Upper: Message
	Lower: Description
P 010xNN00	CM#NN Fault
	CM is disconnected.
P 030xNNcc	CM#NN DMA PORT Alarm
	CM DMA port is disconnected.
P 040xNNcc	CM#NN DI Alarm
	CM DI is disconnected.
P 0500NNmm	CM#NN DI PORT Alarm
	CM DI port is disconnected.
P 0600MM00	CM#MM SMC Alarm
	SMC is disconnected.
P 0700NN00	CM#NN MMC Alarm
	CM MMC is disconnected.
P 0A00MMmm	CM#MM DI PORT/PATH Alarm
	CM DI port path error is detected.
P 0BzxNNss	CM#NN MEMORY(zzzzMB) Fault
	CM memory is disconnected.
P 0C0xNN00	CM#NN COMPACT FLASH Fault
	CM Compact Flash is disconnected.
P 0D00NN00	CM#NN FAN UNIT Fault
	CM FAN unit is disconnected.
P 10wwCC00	CA#CC (on CM#XX) YYYY Fault
	CA is disconnected.
P 11wwCCnn	CA#CC (on CM#XX) YYYY PORT Alarm
	CA port is disconnected.
P 1AwwCCnn	CA#CC (on CM#XX) YYYY SFP OPTICAL SHORTWAVE Fault
	CA SFP is disconnected.
P 1BwwCCnn	CA#CC (on CM#XX) YYYY SFP OPTICAL LONGWAVE Fault
	CA SFP is disconnected.
P 1CwwCCnn	CA#CC (on CM#XX) YYYY SFP+ Fault
	CA SFP+ is disconnected.
P 1DwwCCnn	CA#CC (on CM#XX) YYYY SFP OPTICAL LONGWAVE Fault
	CA SFP is disconnected.

Event type code	Upper: Message
	Lower: Description
P 1FwwCCnn	CA#CC (on CM#XX) SFP Type Unknown Fault CA SFP Type cannot be identified.
P 21830RRR	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss RdndtEnd Redundant Copy is complete and the drive is disconnected.
P 40xxFF00	FRT Fault FRT is disconnected.
P 5000BB00	BRT Fault BRT is disconnected.
P 5100BBmm	BRT PORT/PATH Alarm BRT port path error is detected.
P 5A00BBmm	BRT SFP OPTICAL SHORTWAVE Fault BRT SFP is disconnected.
P 6000EE00	SVC Fault SVC is disconnected.
P 71xxss00	CE FAN UNIT Fault CE FAN unit is disconnected.
P 72xx0000	PANEL UNIT Fault Panel unit is disconnected.
P 73xxss00	CPSU Fault CPSU is disconnected.
P 73xxss00	CPSU Fault(AC Fail) CPSU is disconnected (when a power failure occurs).
P 74xxss00	SCCI CABLE Fault SCCI cable error is detected.
P 7500ss00	BCU Fault BCU is disconnected.
P 76xxss00	BTU Fault BTU is disconnected.
P 7700MM00	BBU SIG CABLE Fault BBU Signal cable error is detected.
P 80SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss Fault HDD is disconnected.
P 80SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss FaildUse HDD is disconnected.
P 80SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss Slowdown Disk performance error is detected. HDD is disconnected.
P 82SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss Fault HDD (SATA) is disconnected.
P 82SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss FaildUse HDD (SATA) is disconnected.

Event type code	Upper: Message
	Lower: Description
P 84SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss Fault SSD (Solid State Drive) is disconnected.
P 84SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss FaildUse SSD (Solid State Drive) is disconnected.
P 88SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss Fault Disk Patrol detects Compare Error. HDD is disconnected.
P 90xxGG0#	PBC Fault PBC is disconnected.
P 9100GG#n	PBC PORT Alarm PBC port is disconnected.
P 9A00GG#n	PBC SFP OPTICAL SHORTWAVE Fault PBC SFP is disconnected.
P 9B00GG#n	PBC SFP COPPER Fault PBC SFP is disconnected.
P 9C00GG0#	DEI CABLE Fault DEI cable error is detected.
P D100GG00	DE FAN UNIT Fault DE FAN unit is disconnected.
P D2xxGG0#	DPSU Fault DPSU is disconnected.
P D2xxGG0#	DPSU Fault(AC Fail) DPSU is disconnected (when a power failure occurs).
P D300GG0#	BBU CABLE Fault BBU cable error is detected.
P DA00GG0&	DE OUT TEMP DE exhaust temperature error (sensor failure) is detected.
P DB00GG00	DE IN TEMP DE intake temperature error (sensor failure) is detected.

The following messages are sent when a temperature error occurs.

Event type code	Upper: Message
	Lower: Description
P 7A00LL0\$	CE OUT TEMP CE exhaust temperature error (fatal error) is detected.
P DA00GG0&	DE OUT TEMP DE exhaust temperature error (fatal error) is detected.

## C.2.3 Warning Messages

This section describes the messages that are sent when the severity is Warning.

### ■ Meaning of symbols

The following symbols are used in the Warning Message List. These symbols are described in *italics*.

Symbol	Meaning
#	System 0 or System 1
\$	Sensor number (0 – 1)
&	Slot number (0 – 1)
*	Slot number (0 – 7)
BB	BRT Module ID (B0 – B7)
c	Capacity (2: 1GB, 4: 2GB, 8: 4GB)
CC	CA Module ID (40 – 7F)
ccccccc	Usage (Data Disk, Spare, System Disk)
EE	SVC Module ID (E0 – E1)
ee	Factor (00: Path error, 01: Highly-loaded, 02: ERROR)
FF	FRT Module ID (F0 – F1)
GG	DE-ID (hexadecimal)
hh	Factor (00 – FF)
kk	DE with the smallest number
LL	FRT/BRT Module ID
MM	CM Module ID (10 – 11)
mm	CM Module ID in which Pinned data occurs (hexadecimal)
n	BAD data counter (Lap counter of 0 – f)
NN	CM Module ID (10 – 17)
PP..PP	Product ID of Disk
ppp	TPP number (hexadecimal)
ss	Slot number (hexadecimal)
SS	Usage (code)
uu	CA Module ID (hexadecimal)
ww	CA type
x	HW type (device type)
xx	HW type (device type)
XX	ID of CM Module in which CA is installed (10 – 17)
xxx	RAID Group number (hexadecimal)
yy	Port number
YYYY	Component name of CA
YYYY/MM	Expiration date
z	Number of days (1 – 6)

Symbol	Meaning
zzz	Disk capacity
zzzz	Capacity (MB)

## ■ Warning Message List

The following messages are sent when the battery reaches its expiration date, when components require maintenance or preventive maintenance, for unusual temperatures, and for other warning events.

Event type code	Upper: Message
	Lower: Description
J 010xNN00	CM#NN Warning
	CM error (statistics or other error) is detected.
J 010xNN00	CM#NN MCE Correctable Error
	CM error (correctable error) is detected.
J 010xNN00	CM#NN FACTOR (00hh)
	CM error other than above is detected.
J 0600MM00	CM SMC
	CM SMC error is detected.
J 0C0xNN00	CM#NN COMPACT FLASH Warning
	CM Compact Flash error is detected.
J 10wwCC00	CA#CC (on CM#XX) YYYY Warning
	CA error is detected.
J 40xxFF00	FRT Warning
	FRT error is detected.
J 5000BB00	BRT Warning
	BRT error is detected.
J 6000EE00	SVC
	SVC error is detected.
J 7006ss00	BATTERY * 6MONTH WARNING YYYY/MM
	6 months before the battery expiration date. When there are multiple batteries with the same expiration date, other Slot numbers are also reported with the smallest Slot number (*1).
J 7007ss00	BATTERY * 1WEEK WARNING YYYY/MM
	1 week before the battery expiration date. When there are multiple batteries with the same expiration date, other Slot numbers are also reported with the smallest Slot number (*1).
J 7007ss00	BATTERY * zDAY WARNING YYYY/MM
	z days before the battery expiration date. When there are multiple batteries with the same expiration date, other Slot numbers are also reported with the smallest Slot number (*1).
J 70FEss00	BATTERY * EXPIRATION ALARM YYYY/MM
	Battery expiration date has passed. When there are multiple batteries with the same expiration date, other Slot numbers are also reported with the smallest Slot number (*1).

Event type code	Upper: Message
	Lower: Description
J 7A00LL0\$	CE OUT TEMP
	CE exhaust temperature error (WARNING) is detected.
J 7B000000	CE IN TEMP
	CE intake temperature error (WARNING) is detected.
J 80SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss SMART
	SMART is reported from the HDD.
J 80SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss Warning
	HDD error is detected.
J 80SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss WarnSlow
	SMART occurs because of Disk performance error in the HDD.
J 80SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss Slowdown
	Disk performance error in the HDD is detected.
J 82SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss SMART
	SMART is reported from the HDD (SATA).
J 82SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss Warning
	HDD (SATA) error is detected.
J 84SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss SMART
	SMART is reported from the SSD (Solid State Drive).
J 84SSGGss	PP..PP zzzGB DISK(ccccccc) DE#GG/Slot#ss Warning
	SSD (Solid State Drive) error is detected.
J 90xxGG0#	PBC
	PBC error is detected.
J C1NN0000	CM#NN Check-1
	CM is rebooted.
J C1CC0000	CA#CC Check-1
	CA is rebooted.
J C3cxNNss	CM#NN MEMORY(zzzzMB) Correctable Error
	Many correctable errors occurred in the CM memory.
J DA00GG0&	DE OUT TEMP
	DE exhaust temperature error (WARNING) is detected.
J DB00GG00	DE IN TEMP
	DE intake temperature error (WARNING) is detected.
M 0732uuyy	Remote Copy Path (MID#uu PORT#yy) Not Available
	Disconnection of a REC path between cabinets is detected.
M 13CF11ee	REC Automatic HALT or ERROR occurred. (ee)
	Occurrence of automatic HALT in the REC is detected.
M 21810xxx	RAID Group#0xxx REBUILD to HS (Recovered end)
	Rebuilding to HS is complete, but Bad Data (data lost identifier) exists.
M 21810xxx	RAID Group#0xxx REBUILD to DV (Recovered end)
	Rebuilding to DV (replaced disk) is complete, but Bad Data (data lost identifier) exists.

Event type code	Upper: Message
	Lower: Description
M E005nxxx	WRITE BAD DATA
	Writing of Bad Data (data lost identifier) occurs.
M E10300mm	PINNED DATA
	Pinned data occurs.
M E2070001	NOT READY(01:Configuration Error)
	The device is in Not Ready status. Shipment settings (model setting) and configuration settings are not performed.
M E2070002	NOT READY(02:CM F/W Version Error)
	The device is in Not Ready status. Firmware version for the CM is not correct.
M E2070004	NOT READY(04:Restore Fail)
	The device is in Not Ready status. Backup is successfully complete, but cannot perform the restoration.
M E207000B	NOT READY(11:Power Off/Fail Incomplete)
	The device is in Not Ready status. Failed to power off. Or the device power powers off immediately after the device powers on.
M E207000C	NOT READY(12:Backup Fail)
	The device is in Not Ready status. Backup failed.
M E207000D	NOT READY(13:Multi CM Down)
	The device is in Not Ready status. Adjoining CMs with LUs are degraded.
M E207000E	NOT READY(14:Machine Down Recovery End)
	The device is in Not Ready status. Machine down recovery is performed.
M E207000F	NOT READY(15:Machine Down Recovery Failed)
	The device is in Not Ready status. Failed to perform machine down recovery.
M E2070010	NOT READY(16:DE Build Error)
	The device is in Not Ready status. Failed to configure DE because of DEI cable errors or FC cable errors.
M E2070011	NOT READY(17:CM Memory Shortage)
	The device is in Not Ready status. Memory capacities are smaller than the minimum value in multiple CMs.
M E2070013	NOT READY(19:FRT Fault)
	The device is in Not Ready status. FRT is failed.
M E2070014	NOT READY(20:BRT Fault)
	The device is in Not Ready status. BRT is failed.
M E406C0kk	FC Loop Recovery Completed
	FC-Loop recovery is complete.

Event type code	Upper: Message
	Lower: Description
M E406F0kk	FC Loop Recovery Failed
	FC-Loop recovery failed.
M E8010ppp	TPP#ppp turned to CAUTION(decrease of available capacity)
	Usage status of the Thin Provisioning Pool is changed: Normal to Caution
M E8020ppp	TPP#ppp turned to WARNING(decrease of available capacity)
	Usage status of the Thin Provisioning Pool is changed: Normal to Warning or Caution to Warning
M E8030ppp	TPP#ppp returned to CAUTION(increase of available capacity)
	Usage status of the Thin Provisioning Pool is changed: Warning to Caution
M E8040ppp	TPP#ppp returned to NORMAL(increase of available capacity)
	Usage status of the Thin Provisioning Pool is changed: Warning to Normal or Caution to Normal

\*1: Notation of Slot number  
 When there are multiple batteries with the same expiration date, other Slot numbers are also reported with the smallest Slot number.  
 (Example)  
 When the Slot number is 0, 1, and 2, the following three logs will be reported:  
 J 70FE0000 BATTERY 0/1/2 ...  
 J 70FE0100 BATTERY 1 ...  
 J 70FE0200 BATTERY 2 ...

## C.2.4 Informational Messages

This section describes the messages that are sent when the severity is Information.

### ■ Meaning of symbols

The following symbols are used in the Informational Message List. These symbols are described in italics.

Symbol	Meaning
a	Number of Affinity Groups
aaaa	Type of registration target license (Advanced Copy, Thin Provisioning, GS)
b	Number of sessions
cccc	Component name (CA, Disk, CM, DE, PBC, etc)
cccccc	Setting contents (Configuration, Customer, Communication, Server Device, Firmware, Log)
cccccc	Reliability of TPP (High, Middle, None)
d	Number of disks
dddd	Component name (Memory, CA, Disk, CM, DE, etc)
eee	Action when an error occurs (Any: Perform internal authentication when an error occurs. Network: Perform internal authentication when a Network error occurs. None: Do not perform internal authentication.)
eeeeee	Eco-mode settings (Start, Stop)
ffff	Encryption mode (Fujitsu, AES)
GG	DE-ID (hexadecimal)
ggggg	Setting contents (Domains, Numerical Resources, RAID Group, Thin Provisioning Pool, Host WorldWideName, iSCSI Host, Affinity Group, Host Response, Eco-mode Schedule)
h	Number of hosts
hhhh	Type of hosts (FC, iSCSI)
kkkkk	Enable/Disable of Syslog (Enable, Disable)
m	Number of LUN Mappings
mm	Slot number (hexadecimal)
mmmm	Configuration application mode (Initialize, Restore)
n	Number of RAID Groups
nnnnn	Factor (Normal, Failure)
p	Number of ports
ppp	TPP number
rrrr	Processing contents (Delete, Destage)
rrrrr	Setting contents (Resume, Suspend, Maintenance)
s	Numer of HS
ssss	SID number (hexadecimal)
sssss	Setting contents (Start, Stop)
t	Number of TPPs
tttt	Setting contents (Register, Delete)

Symbol	Meaning
tttt	Enable/Disable of SNMP (Enable, Disable)
u	Number of TPVs
uuuu	Port (USER, REMCS)
v	Number of volumes
vvv	Enable/Disable of RADIUS authentication (Internal, RADIUS)
x	CM number
X	RAID Level
xx	Affinity Group number (hexadecimal)
xxx	RAID Group number (hexadecimal)
xxxx	Volume number (hexadecimal) Mainframe volume and MVV are displayed as Mxxxx
xxxxxx	User name (character string)
xxxxxxxxxx	Product ID of firmware
xxxxxxxxxxx	Total version of firmware
y	CA number
yyy	Migration destination Pool number (hexadecimal)
yyyy	Revision of firmware
yyyyyy	Role name (character string)
yyyyyyyy	Application mode of the controller firmware (Concurrent, Nonconcurrent)
z	Port number

## ■ Informational Message List

The following messages are sent when ETERNUSmgr or maintenance software is used in the ETERNUS DX400/DX8000 series.

Event type code	Upper: Message
	Lower: Description
I 00010100	Create RAID group(s): Count= <i>n</i> (No= <i>xxx</i> Level=RAIDX Disk=GGmm.. GGmm) $\times$ <i>n</i>
	RAID Groups are registered.
I 00010200	Delete RAID group(s): Count= <i>n</i> No= <i>xxx</i> .. <i>xxx</i>
	RAID Groups are deleted.
I 00010300	Expand RAID group: No= <i>xxx</i> Level=RAIDX Disk=GGmm.. GGmm
	Logical Device Expansion is started.
I 00010400	Modify RAID group control CM(s):
	Controlling CM of the RAID Group is changed.
I 00010500	Make hot spare disk(s) Count= <i>s</i> Disk=GGmm.. GGmm
	Hot Spare Disks are registered.
I 00010600	Cancel hot spare disk(s) Count= <i>s</i> Disk=GGmm.. GGmm
	Hot Spare Disks are deleted.
I 00010700	Modify ECO Mode settings: Operation=eeeeee
	Eco-mode settings are changed.

Event type code	Upper: Message
	Lower: Description
I 00010800	Modify ECO Mode Schedule settings:
	Eco-mode schedule settings are changed.
I 00020100	Create Logical Volume(s): Count=v No=xxxx..xxxx
	Logical Volumes are registered.
I 00020200	Delete Logical Volume(s): Count=v No=xxxx..xxxx
	Logical Volumes are deleted.
I 00020300	Concatenate Logical Volume: No=xxxx
	LUN Concatenation is performed.
I 00020400	Start RAID Migration to RAID Group: No=xxxx Destination=xxx
	RAID Migration for the RAID Group is started.
I 00020500	Start Format Logical Volume(s): Count=v No=xxxx..xxxx
	Formatting of Logical Volumes is started.
I 00020600	Start Encrypt Logical Volume(s): Count=v No=xxxx..xxxx
	Encryption of non-encrypted volumes is started.
I 00020700	Cancel RAID Migration to RAID Group: No=xxxx
	RAID Migration for the RAID Group is stopped.
I 00030100	Create Thin Provisioning Volume(s): Count=u No=xxxx..xxxx
	Thin Provisioning Volumes are registered.
I 00030200	Delete Thin Provisioning Volume(s): Count=u No=xxxx..xxxx
	Thin Provisioning Volumes are deleted.
I 00030300	Modify Thin Provisioning Volume Capacity(s): Count=u No=xxxx..xxxx
	Thin Provisioning Volume capacity is expanded.
I 00030400	Modify Thin Provisioning Volume settings: Count=u No=xxxx..xxxx
	Thin Provisioning Volume settings are changed.
I 00030500	Start Format Thin Provisioning Pool(s): Count=t No=ppp..ppp
	Formatting of Thin Provisioning Pools is started.
I 00030600	Create Thin Provisioning Pool(s): No=ppp Reliability=ccccc Disk=GGmm..GGmm
	Thin Provisioning Pools are registered.
I 00030700	Delete Thin Provisioning Pool: Count=t No=ppp..ppp
	Thin Provisioning Pools are deleted.
I 00030800	Modify Thin Provisioning Pool settings: Count=t No=ppp..ppp
	Thresholds of Thin Provisioning Pools are changed.
I 00030900	Start Format Thin Provisioning Volume(s): Count=u No=xxxx..xxxx
	Formatting of Thin Provisioning Volumes is started.
I 00030A00	Start Balancing Thin Provisioning Volume: No=xxxx
	Balancing of Thin Provisioning Volumes is started.
I 00030B00	Cancel Balancing Thin Provisioning Volume: No=xxxx
	Balancing of Thin Provisioning Volumes is stopped.
I 00030C00	Start RAID Migration to Thin Provisioning Pool: No=xxxx Destination=yyy
	RAID Migration for the Thin Provisioning Pools is started.

Event type code	Upper: Message
	Lower: Description
I 00030D00	Cancel RAID Migration to Thin Provisioning Pool: No=xxxx
	RAID Migration for the Thin Provisioning Pools is stopped.
I 00040100	Modify EC/OPC settings:
	EC/OPC related information is changed.
I 00040200	Modify REC settings:
	REC related information is changed.
I 00040300	Modify RFCF settings:
	RFCF related information is changed.
I 00040400	Modify RFCF Allow list:
	WWN of the RFCF-RA port is changed.
I 00040500	Export REC Path information:
	Advanced Copy path is exported.
I 00040600	Start Initialization Snap Data Volume: No=xxxx
	Initializing of Snap Data Volumes is started.
I 00040700	Start Storage Migration:
	Storage Migration is started.
I 00040800	Stop Advanced Copy Session(s): Count= <i>b</i> SID=ssss..ssss
	Advanced Copy sessions are stopped.
I 00040900	Create REC Disk Buffer(s): Count= <i>n</i> No=xxx..xxx
	REC Disk Buffers are registered.
I 00040A00	Start Format REC Disk Buffer(s): Count= <i>n</i> No=xxx..xxx
	Formatting of REC Disk Buffers is started.
I 00040B00	Delete REC Disk Buffer(s): Count= <i>n</i> No=xxx..xxx
	REC Disk Buffers are deleted.
I 00050100	Modify CA Port settings: Count= <i>p</i> Position=xyz..xyz
	CA port related information is changed.
I 00050200	Modify Host list: Interface=hhhh Hosts= <i>h</i>
	WWN related information is changed.
I 00050300	Modify LUN Mapping settings: Count= <i>m</i> Position=xyz..xyz
	LUN Mappings are changed.
I 00050400	Modify Affinity Group settings: Count= <i>a</i> No=xx..xx
	Affinity Groups are changed.
I 00050500	Modify Host Affinity settings: Count= <i>p</i> Position=xyz..xyz
	Host-Affinity Groups are changed.
I 00050600	Modify Host Response list:
	Host Response related information is changed.
I 00050700	Modify CA Reset Group:
	CA Reset Group is changed.
I 00050800	Modify LCU settings:
	LCU is changed.

Event type code	Upper: Message
	Lower: Description
I 00050900	Release Reservation: Reservation (occupation of volumes) is released.
I 00050A00	Delete Sense Data: Sense data is deleted.
I 00060100	Logged on: Name="xxxxxx" Role="yyyyyy" Logged on to the device.
I 00060200	Logged off: Name={"xxxxxx"} Logged off from the device.
I 00060300	Logon failed: Name={"xxxxxx"} Failed to log on.
I 00060400	Modify User settings: User account settings are set or changed.
I 00060500	Modify Role settings: Roles settings are changed.
I 00060600	Modify authentication settings: Mode=vvv Recovery=eee RADIUS authentication settings are changed.
I 00060700	Modify Resource Domain settings: settings=ggggg Resource Domain settings are changed.
I 00070100	Register Controller Firmware: Version=xxxxxxxxxx Controller firmware is registered.
I 00070200	Start Applying Controller Firmware: Version=xxxxxxxxxx Mode=yyyyyyyy Application of controller firmware is started.
I 00070300	Register Disk Firmware: ProductID=xxxxxxxxxx Revision=yyyy Disk firmware is registered.
I 00070400	Start Applying Disk Firmware: ProductID=xxxxxxxxxx Revision=yyyy Application of disk firmware is started.
I 00070500	Controller firmware updated: Version=xxxxxxxxxx Controller firmware version is updated.
I 00080100	Modify Network settings: Port=uuuu Network environment settings are changed.
I 00080200	Modify SNMP settings: Function=tttt SNMP Agent settings are changed.
I 00080300	Modify Remote Support settings: settings=ccccc Remote support related information is changed.
I 00080400	Change Remote Support mode Mode=rrrrr Remort support function is stopped or restarted.
I 00080500	Modify Notification settings: Advanced Copy event notification is changed.
I 00080600	Modify Syslog settings: Function=kkkkk Syslog setting is enabled or disabled.

Event type code	Upper: Message
	Lower: Description
I 00080700	Modify Performance Monitor settings: Operation=sssss
	Obtaining performance information is started or stopped.
I 00080900	Modify Disk Performance Monitor settings: Operation=sssss
	Disk performance monitor is changed.
I 00090100	Apply Configuration data: Mode=mmmm
	Configuration information setting is applied.
I 00090200	Change License status: kind=aaaa mode=tttt
	License is registered or deleted.
I 00090300	Modify system date/time settings:
	Date/time settings are changed.
I 00090400	Modify Sub System Parameters:
	Subsystem parameters are changed.
I 00090500	Modify Cache settings:
	Cache capacity and cache controlling parameters are changed.
I 00090600	Execute Force Write Back:
	Forcible write back is performed.
I 00090700	Modify Disk Tuning Parameters:
	Disk tuning parameters are changed.
I 00090800	Modify Disk Patrol settings:
	Disk patrol is changed.
I 00090900	Change Encryption mode: Mode=ffff
	Encryption mode is set.
I 00090A00	Modify Backend FC Rate settings:
	FC transfer rate is changed.
I 00090B00	Modify Debug Mode settings:
	Debug mode settings are changed.
I 00090C00	Initialize System Disks:
	System disks are initialized.
I 00090D00	Export Configuration:
	Configuration information is exported.
I 00090E00	Modify BoxID:
	Box ID is changed.
I 000A0100	Power on completed: Version=xxxxxxxxxx
	The device status is changed to Ready.
I 000A0200	Shutdown started: Reason=nnnnn
	Device shutdown is started.
I 000A0300	Change Maintenance mode Operation=sssss
	Maintenance operation is started or stopped.
I 000A0400	Start Module replacement process: Parts=cccc
	Maintenance (or preventive maintenance) of the component in hot mode is started.

Event type code	Upper: Message
	Lower: Description
I 000A0500	Start Module installation process: Parts= <i>dddd</i>
	Expansion of the component in hot mode is started.
I 000A0600	Start Module deletion process: Parts= <i>dddd</i>
	Reduction of the component in hot mode is started.
I 000A0700	Start Module degradation process: Parts= <i>cccc</i>
	Forcible degradation of the target component is started.
I 000A0800	Start Module upgrade process: Parts= <i>cccc</i>
	Forcible installation of the target component is started.
I 000A0900	Modify Battery TOD:
	Expiration date of the battery is changed.
I 000A0A00	Start DE Force Reboot: De= <i>GG</i>
	Forcible rebooting of the DE is started.
I 000A0B00	Start RAID Group recovery: No= <i>xxx</i>
	Recovery of the RAID Group is forcibly started.
I 000A0C00	Manage Pinned Data: Operation= <i>rrrr</i>
	Pinned data is deleted or written back.
I 000A0D00	Initialize DVCF: No= <i>xxxx</i>
	DVCF is initialized.
I 000A0E00	Reset Backup/Restore Fail:
	Backup state or Restore Fail state is reset.
I 000A0F00	Execute Force Restore:
	Forcibly restored.
I 000A1100	Reset Machine Down Recovery Fail:
	Machine down recovery fail state is reset.
I 000A1200	Delete Bad Sector information:
	Bad sector information is deleted.
I 000A1300	Start RAID Diagnostic: Count= <i>n</i> No= <i>xxx..xxx</i>
	RAID Group diagnosis is started.
I 000A1400	Export Log:
	Log is exported.
I 000A1500	Clear Log:
	Log is cleared.
I 000A1600	Export Panic Dump:
	Panic dump information is exported.
I 000A1700	Clear Panic Dump:
	Panic dump information is deleted.
I 000A1800	Export G-List:
	G-List is exported.
I 000A1900	Start Disk Diagnostic: Count= <i>d</i> Disk= <i>GGmm..GGmm</i>
	Disk diagnosis is started.

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ETERNUS DX400/DX8000 series  
ETERNUSmgr User Guide  
-Settings/Maintenance-

P2X0-0760-02ENZ0

Date of issuance: August 2010  
Issuance responsibility: FUJITSU LIMITED

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